OCT. 16 1959

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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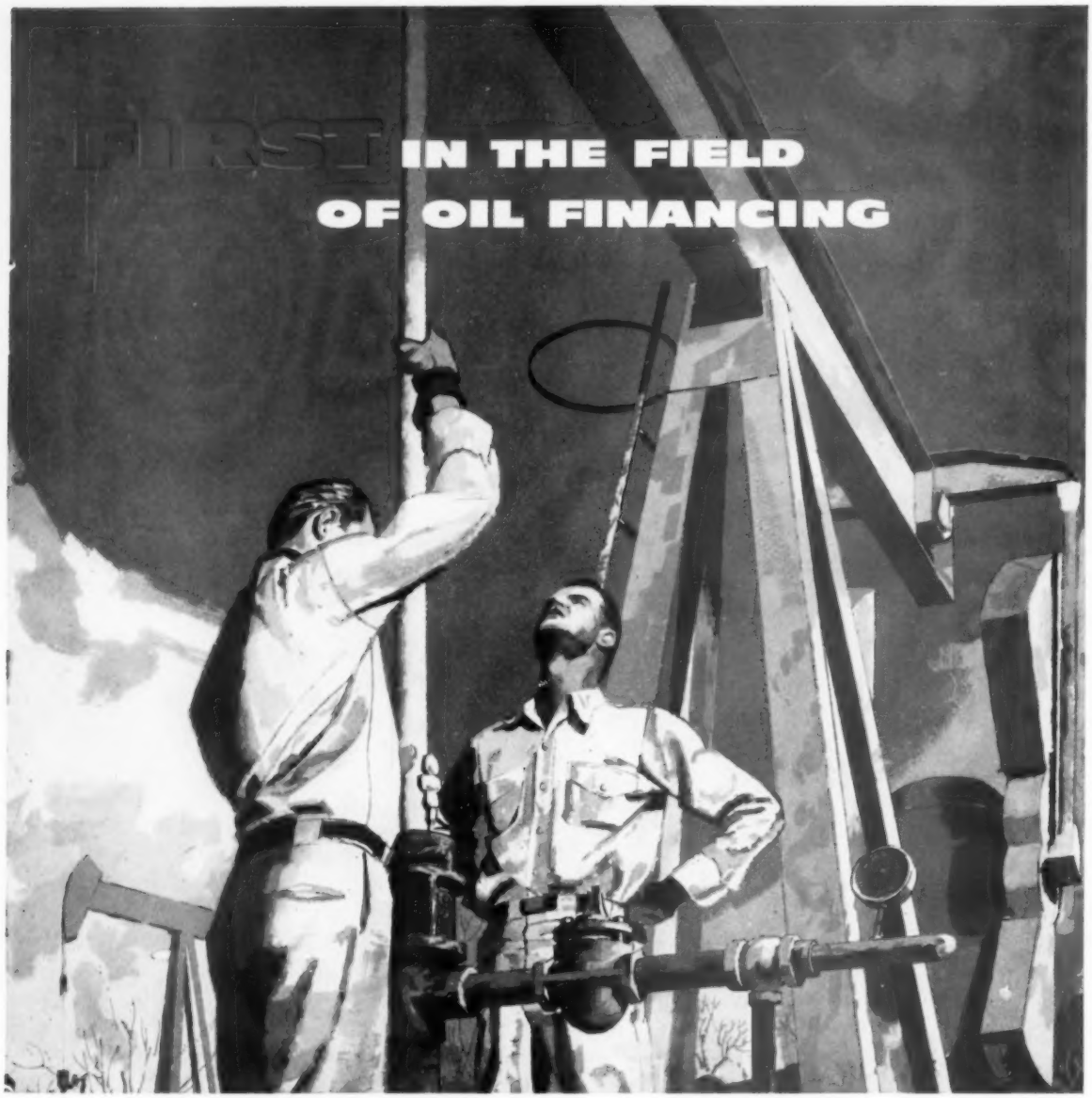

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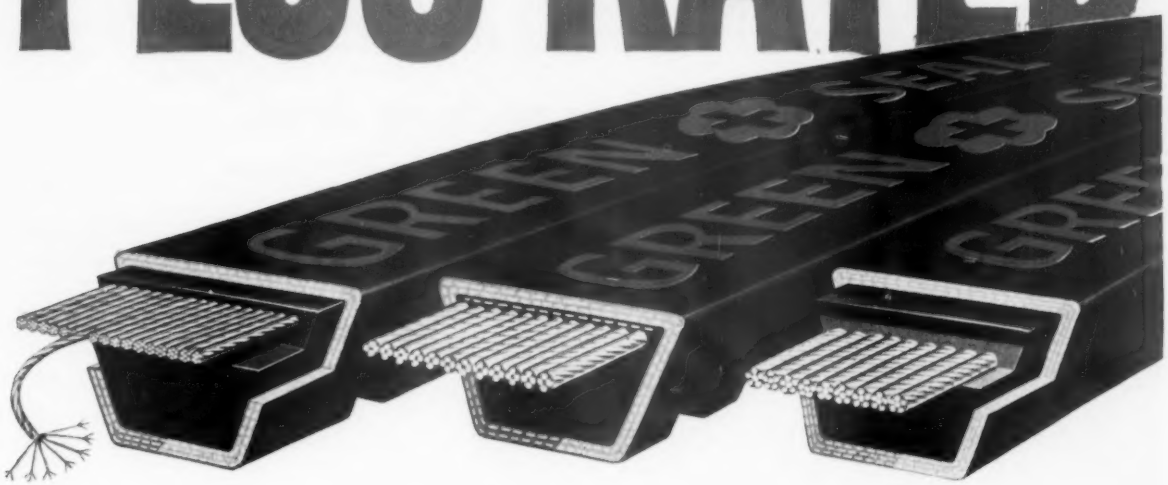

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INSIDE Slant

IT CAN BE DONE

If there ever has been an industry which has lived under the slogan, "they said it couldn't be done," it is the oil industry.

Michel T. Halbouty, Houston oil man who has never been one to think it couldn't be done, recently cited six discoveries around the world to prove it could be done.

He told a meeting of the Assn. of Desk & Derrick Clubs of North America that each of the men responsible for the oil discoveries had been told it couldn't be done.

The first man to disprove the slogan in the oil industry was Col. Edwin L. Drake. His well at Titusville, Pa., started it all. That was back in 1859.

Next was Pattillo Higgins at Spindletop, where oil became an industry back in 1901. He repeatedly had been told oil could not be found in the sands of the Gulf Coast.

There followed W. K. D'Arcy's disheartening but finally successful quest for oil in the Middle East in 1908.

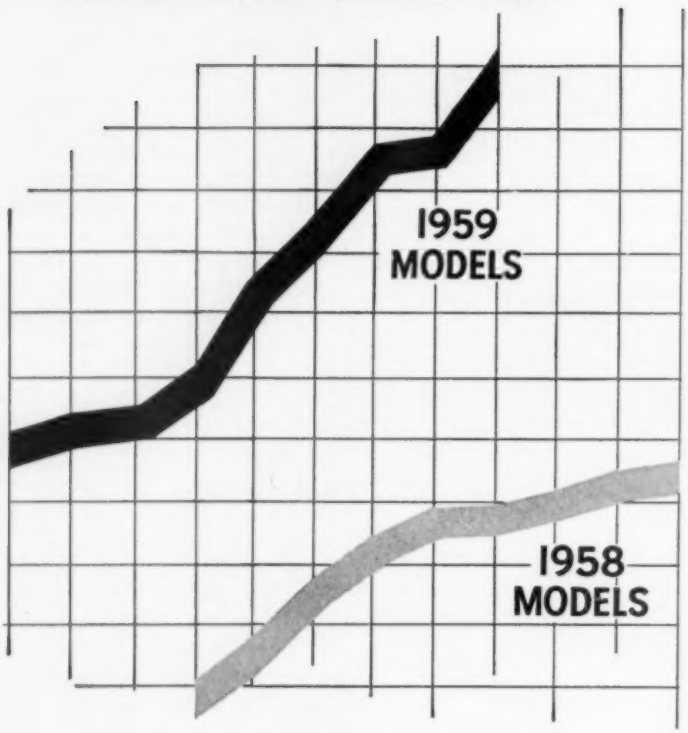
Then came Roberto De Mares in Colombia in 1918, followed by Charles Eckes at Venezuela's Lake Maracaibo in 1924, and Dad Joiner's 1930 East Texas discovery.

It couldn't be done?

LeRoy Menzing
Editor

The BIG SUCCESS

1959 FORD SUPER DUTY TRUCK SALES MORE THAN DOUBLE THOSE OF LAST YEAR



1960 FORD SUPER DUTIES

SKYROCKETING SALES OFFER ADDED TESTIMONY TO THE TOUGHNESS AND RELIABILITY OF FORD "BIG V'S"— *NOW* THEY'RE MORE DURABLE, MORE FLEXIBLE THAN EVER!

Ford's increase in sales of Super Duty Trucks, while impressive in itself, by no means tells the whole story. Over half of the 1959 unit sales were the result of repeat orders from operators like Trucking Contractors, Inc., who bought because the Ford "Big V" provided the kind of performance and durability needed for their work.

And for 1960, the Ford Super Duties offer additional refinements designed to provide an even greater degree of dependability. Bigger optional axles and increased GVW's permit greater payloads and more profitable operation. Automatic radiator shutters to keep the engine temperatures within the most efficient operating range, submerged-type electric fuel pump to prevent vapor lock, and redesigned wiring for longer, more dependable operation are but a few of the improvements which add to the performance and durability of these units.

The changes offered for 1960 were tested and evaluated by America's foremost independent automotive research organization. The certified results of the studies by this impartial firm (name available on request) provide proof that Ford's Super Duty Trucks are even more dependable.

- **Certified Durability through closer temperature control!** Independent research engineers certify that Ford's thermostatically controlled radiator shutters kept water temperature between 168° and 188° in severe mountain grade operation. The test truck with shutters blocked open

of the Big Truck Field

"Tried 8 in '58—bought 20 more in 1959," says Curtis E. Brost, President, Trucking Contractors, Inc. "In 1958 we bought 8 Ford T-850's with lightweight chassis options and specially built 5-batch bodies which gave us a full extra batch per truck. A 5-batch load is a real strain on the truck when you consider we're 'running the ditches' on this highway paving job in North Dakota. These T-850's worked out so well that we ordered 20 more in '59. Our Ford Tandems with the 477 engine give us good mileage and the drivers are real happy with them. It's a rough go on trucks with soft footing and dust so bad we have to drive with headlights on. Despite such operating conditions, downtime has been negligible and these '477' Fords have given us less trouble than other trucks we have operated."

with Certified Durability

under same operating conditions had a temperature range from 102° to 181°. The temperature variation of only 20° with shutters means less expansion and contraction in engine block and cylinder heads. Higher temperatures with radiator shutters permit leaner fuel-air mixtures with less possibility of raw gas washing down cylinder walls. Warm oil circulates more freely, reducing internal friction. All these factors contribute to longer engine life.

- **Certified Dependability with longer-lived electrical system!** Ford's '60 improved wiring harness and the 1959 wiring harness were subjected to shaker table tests plus constant exposure to oil and water vapors and temperatures of 200°. Certified results prove that the greater resistance to deterioration by heat, oil, water and abrasion obtained with the 1960 wiring harness more than doubles wiring harness life.

- **Certified Reliability with Ford's submerged-type electric fuel pump!** Dynamometer tests of engines with submerged-type electric fuel pump and conventional mechanical type showed that vapor lock was non-existent with Ford's electric pumps at temperatures up to 200°, whereas incipient vapor lock with mechanical pump resulted in a power loss of 9% at an underhood temperature of 200°.

Test results like these plus the experience of satisfied users are important but that is not all. For 1960, the Super Duty line has been broadened to provide even more flexibility in power train options. Get the facts from your Ford Dealer!

FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . BUILT TO LAST LONGER, TOO!

Congrats and $25 for this quip to J. B. VANDERGRIFT, Vandergrift Oil & Gas, Independent Producer, Pittsburgh, Pa.

You can "put this in your pipe and smoke it"... Lone Star casing, tubing and line pipe is the most popular in the industry ... because it is tough, dependable and available conveniently right in the middle of the oil country.

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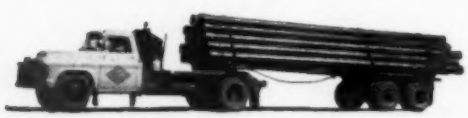
Neighbor, wherever you are, specify Lone Star and we both get a good deal.



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DEPT/Opinions

Views That

"The union has done a better job of mobilizing the opposition than it has in mobilizing itself. . . . The petroleum industry is perhaps a little riper than the others. . . . Being our biggest segment, the petroleum industry will probably reach the maximum bargaining strength first."

—O. A. KNIGHT
President
Oil, Chemical & Atomic Workers Union

"Certain flagrant cases of discrimination among fields and producers in areas served by crude purchasing companies are clearly in evidence. If, as reported to us, certain purchasing companies have adopted a policy of refusing to purchase ratably oil from new fields in which they themselves are not producers, even though such fields be in areas for which they are the logical purchasers, then it is indeed time for top management to examine the consequences of such a policy."

—LESTER CLARK
Chairman
Liaison Committee of the Cooperating Independent Producer Assns.
Breckenridge, Tex.

. . . and Letters

Dear Sir:

In your article entitled "Jersey Looks Ahead" (PW—Sep.11'59,p14), there is an error in statement regarding certain of Jersey's affiliates, which I would like to correct and explain. The statement reads "Esso Standard has been an affiliate since 1944; it formerly was Standard of Louisiana."

The present Esso Standard Oil Co. was incorporated in Delaware in 1927 as a subsidiary of Standard Oil Co. (N. J.) under the name Standard Oil Co. of New Jersey. In 1948, Standard Oil Co. of New Jersey (incorporated in Delaware) was renamed Esso Standard Oil Co.

Standard Oil Co. of Louisiana was incorporated in 1909 by representatives of Standard Oil Co. (N. J.). Standard Oil Co. of Louisiana became a wholly owned subsidiary of Standard Oil Co. (N. J.). As of Dec. 31, 1944, the pipeline properties and operations of Louisiana Standard were acquired by Interstate Oil Pipeline Co. (formerly Oklahoma Pipeline Co.), another wholly owned subsidiary of Standard Oil Co. (N. J.). Meanwhile, the producing operations of Louisiana Standard had been merged with those of Carter Oil Co., another subsidiary

Make News . . .

of Standard Oil Co. (N. J.), which you mentioned in your article. Immediately after the disposal of its pipeline properties, the other operations of the dissolved Louisiana Standard Co. were merged into the then Standard Oil Co. of New Jersey (incorporated in Delaware), as the latter's Southern Division. These operations consisting mainly of refining and marketing in Louisiana and nearby states. . . .

CATHERINE C. ELLSWORTH
Associate in Research
Graduate School of
Business Administration
Harvard University

Dear Sir:

Your editorial "Thirty Years—Still No Improvement" [PW—Oct.2'59,p 60] is most timely and should provoke some thought throughout the entire oil industry.

Your conclusion, "The refining industry doesn't learn from experience," could well be changed to, "The industry doesn't learn from experience." Do not forget that the producing segment of our industry was the big offender prior to the establishment of effective conservation and market demand laws. And today, in oil producing states not having conservation and market demand laws, their contribution toward stability can well be questioned.

The marketing segment—service stations on every corner—is most certainly not in the interest of stability or low prices to consumers.

I am confident that an analysis of the over-all operation of our entire petroleum industry over the last 30 years will reach the conclusion that stability arising from operations of all segments within limits of market demand will not be secured voluntarily, but only through an incentive not now in existence, or by compulsion through legislative action.

D. W. HOVEY
President
Danaho Refining Co.
Houston, Tex.

PETROLEUM WEEK *will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.*

Address all such correspondence to LeRoy Menzing, Editor, PETROLEUM WEEK, *330 W. 42nd St., New York 36, N.Y.*

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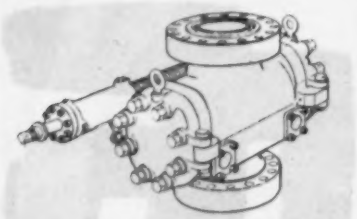
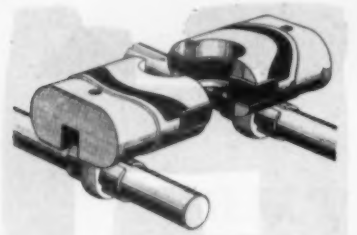
"... WITH SO MUCH AT STAKE TAKE CAMERON EVERY TIME."

The most important part of your rig can be your blow-out preventer system.



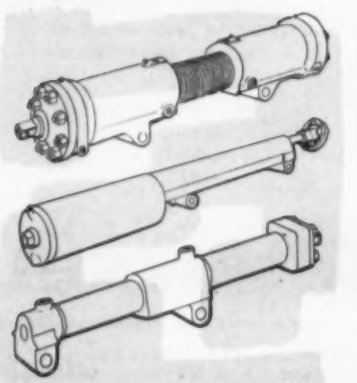
Cameron Type "F" Blowout Preventer—latest design in almost 40 years of leadership.

When you are drilling, you're looking for pressure—and higher pressure means higher profit.

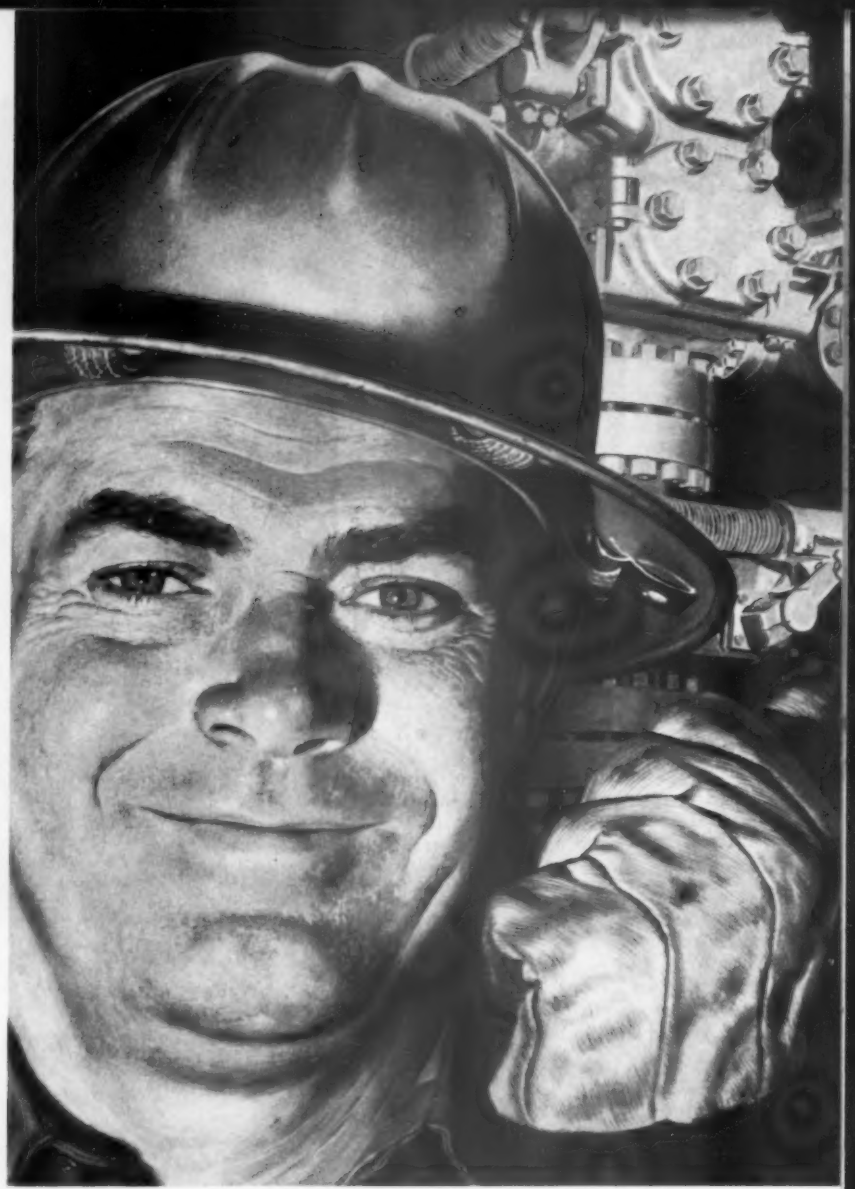


Ram actuator shafts rotate—are sealed at both ends to produce pressure balance for extra-easy operation.

But the difference between success and failure can depend on your ability to control down hole pressures.



Type "F" Preventers are available with interchangeable operators for hydraulic, air or manual service.



Since we developed the first successful preventer, almost 40 years ago, a majority of successful operators all over the world have relied on the safety, service and economy of our efficient units.

Cameron Type "F" Preventers are the latest design in our development program, which, incidentally, is continuous at Cameron.

Early in our history as a company it became obvious that intermittent design work cannot meet the rush toward greater depths and higher pressures. As a result, we have always been ready with equipment to handle each new drilling requirement.

Close and continuous observation of pressure problems in drilling has shown that the best Blowout Preventer is the only bargain. This is the reason we say ". . . with so much at stake, don't take chances, take Cameron every time."

Cameron

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60-Second Summary / WHAT'S HAPPENING IN OIL

October 16, 1959

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Independent U. S. oil companies will get no sympathy from the Venezuelan government. This is one of the many points discussed by Dr. Juan Pablo Perez Alfonzo, Venezuela's oil minister, in an exclusive interview with Petroleum Week. . . . p. 24

•

The long controversy over federal vs. state ownership of submerged lands in the Gulf of Mexico is nearing a climax. The Supreme Court heard three days of oral arguments this week, and millions of dollars in royalty payments hang in the balance. . . . p. 16

•

The Oil, Chemical & Atomic Workers Union is readying itself for a "big push" on petroleum refineries. It has listed nine plants whose capture could alter the balance of bargaining power. . . . p. 15

•

A new well completion method, using "ready-made" perforations, is about to make its commercial debut. The permeator technique, invented several years ago, will be introduced late this fall—probably in Oklahoma. . . . p. 26

•

Butadiene can be kept "indefinitely" by storing it at 35F. That is the contention of Texas Butadiene & Chemical Corp., which is building the world's first refrigerated butadiene storage terminal at Galena Park, Tex. . . . p. 52

•

Drilling contractors were told this week that they face a bumpy road ahead, but that profits can still be made. Two speakers reached this conclusion at the 19th annual meeting of the American Assn. of Oilwell Drilling Contractors. . . . p. 32

•

Detroit's new car crop may force a broadening of the octane range. Superpremiums are expected to inch upward in octane number, while regular gasoline holds firm or drops slightly. . . . p. 66

•

Libyan concessions have a higher price tag. British Petroleum Co., for instance, relinquished the 25% depletion tax provision on all of its present acreage to obtain two new blocks in Eastern Libya. . . . p. 58

•

Argentina is scoring with its double-barreled oil development program. With U. S.-company help, the country is opening up new pipeline outlets. . . . p. 56

•

Octane ratings continue to climb while sensitivity and olefin content decrease. That's the conclusion of Ethyl Corp.'s survey of 131 premium gasolines in current and future car engines. . . . p. 47

Up to the Minute

SIGNIFICANT LATE NEWS

AT-A-GLANCE Copyright PETROLEUM WEEK

October 16, 1959

The "market price" for crude import quotas for the first half of 1960 appears open. One major is reported to be considering as much as 95¢ a bbl. for next year's allocations while another talks of a range of 30¢ to 40¢ a bbl. For the first half of 1959, going prices ranged as high as $1.25 a bbl., with offerings trimmed to about 75¢ a bbl. for the last half.

•

Louisiana's crude allowable will be unchanged for November and December. With the usual allowance for new production, the initial crude permissible will average about 935,000 b/d, with estimated crude and condensate output for November at about 1-million b/d.

•

The Federal Power Commission cut the producer price on Rusk County (Tex.) natural gas to be sold to United Gas Pipeline Co. The commission conditioned certificates to Phillips Petroleum Co. and Union Producing Co. by lowering the price from 17¢ to 15¢ per Mcf. FPC said the 17¢ price would have set a "high" for the area.

Meanwhile, an FPC examiner recommended approval of sales certificates to 20 producers proposing to sell gas from various Texas fields to El Paso Natural Gas Co. and Pioneer Gathering System, Inc., at prices ranging from 10.5¢ to 12.5¢ per Mcf. The recommendation also authorized construction of pipeline facilities costing $9,225,300.

•

Jersey Standard is working out engineering details for a 30-in. Libyan crude line to the Mediterranean. Initial capacity will be 200,000 b/d, which can be boosted to 500,000 b/d with extra stations.

•

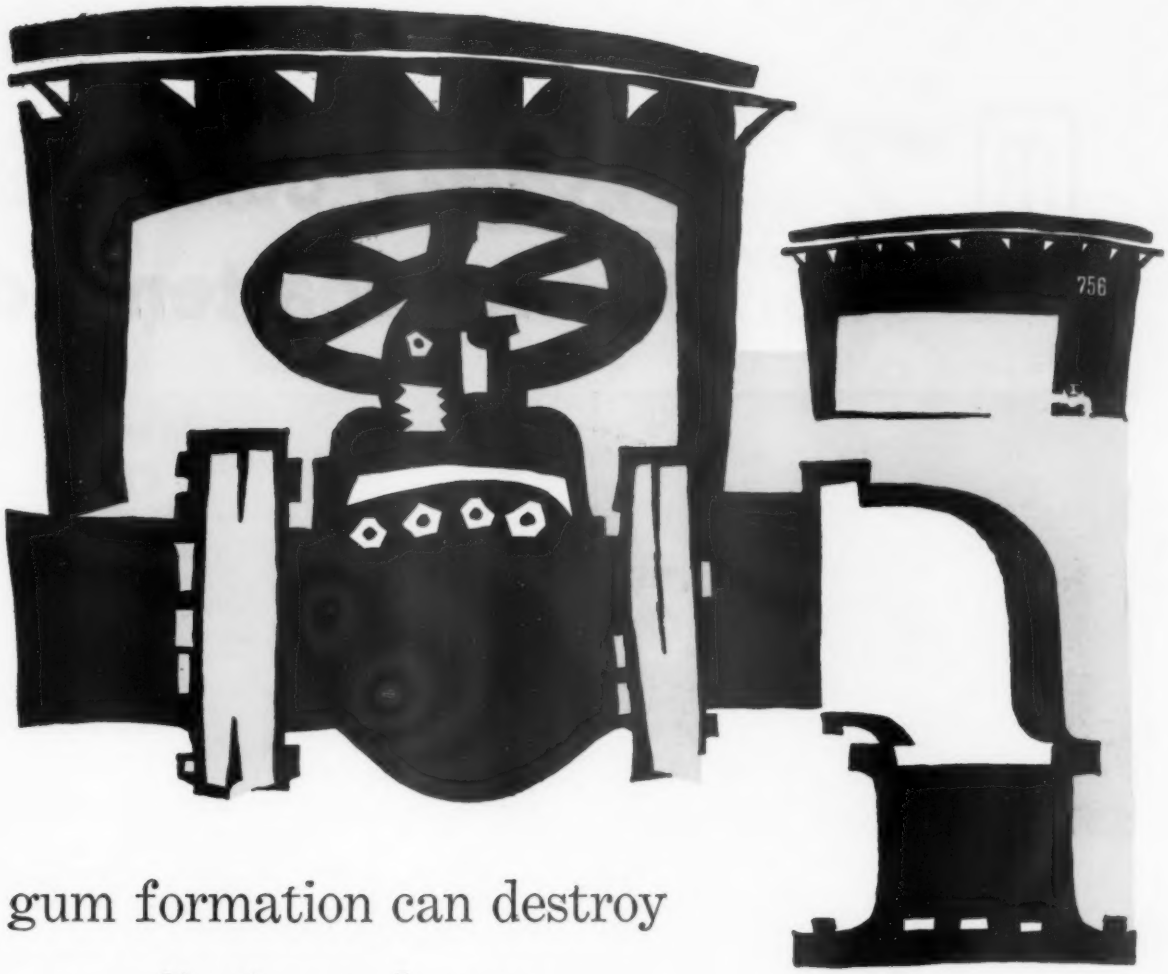
The National Petroleum Council has completed its study of industry manpower available for emergency governmental service. The council is expected to approve the report next Monday, after which it will be turned over to the Interior Dept. Progress reports also are expected on two other Interior assignments: industry use of radio and radar, and a study of petroleum storage facilities.

•

There's a chance that rate cases involving independent gas producers can be settled without the public utilities label. Harry Trainor, executive director of the Federal Power Commission, says FPC is considering the use of cost studies developed in hundreds of previous cases as a partial basis for handling rate cases involving independents in given areas.

•

Rep. James Roosevelt (D., Calif.) isn't ready to let go of his divorcement proposals. He told the Indiana Independent Petroleum Assn. this week that the House small business subcommittee's latest survey of the oil industry indicates that the plight of small businessmen hasn't improved.



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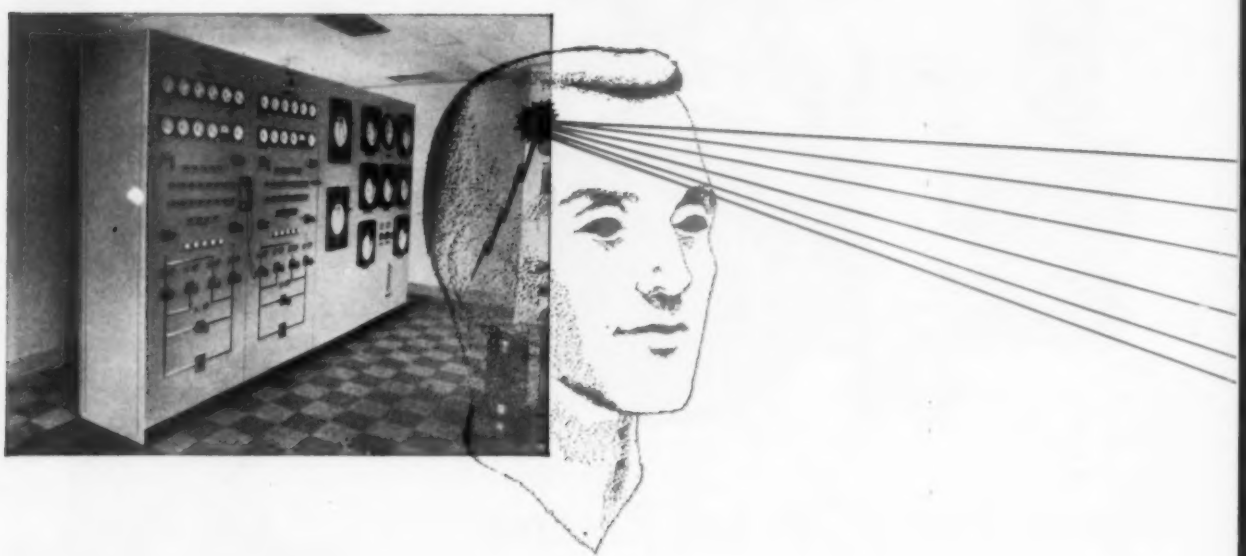
Tendamatic control... for unattended



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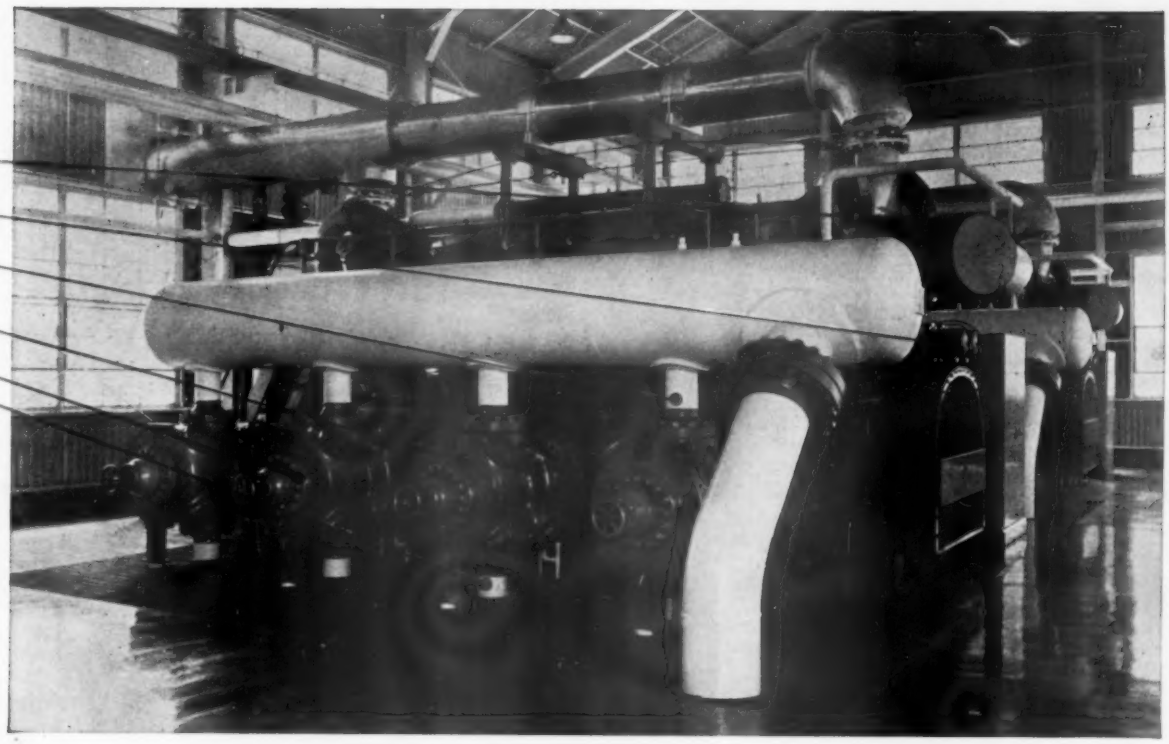

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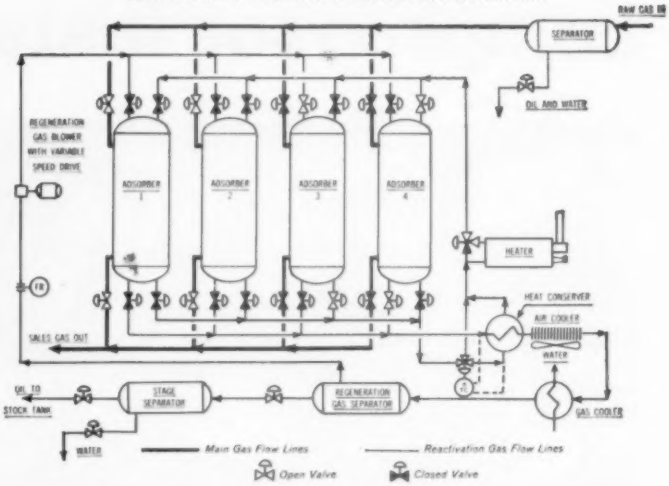

Flow diagram of a typical 4 Tower DRY FRAC Unit With Closed Cycle Regeneration. Smaller diameter towers and smaller valves of standard sizes contribute to reduction in cost of this type unit.

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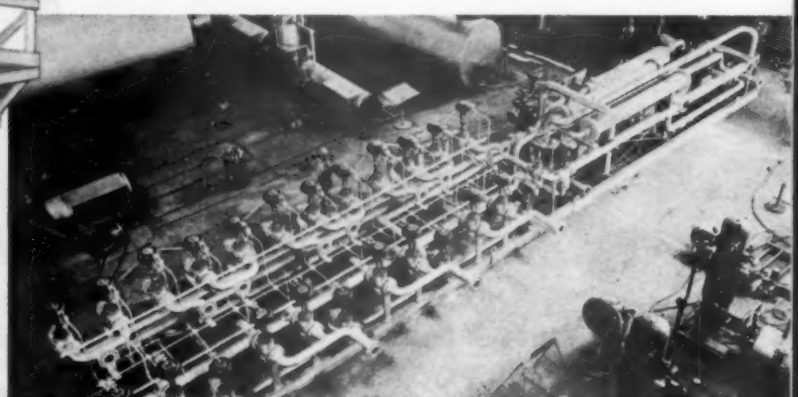

This skid-mounted assembly for a large 4 Tower DRY FRAC Unit is shown as it neared completion in our plant.

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BS&B — OVER 60 YEARS — ANOTHER EXAMPLE OF PRODUCT LEADERSHIP

PETROLEUM WEEK
October 16, 1959

OCAW Sets Organizational Goals

Union describes nine plants as keys to 'balance of power'

These are the refineries that are or could be prime targets in the membership drive that will be underway in the near future:

Company	Location	Capacity in b/d
Esso Standard Oil Co.	Baton Rouge, La.	364,200
	Linden, N. J.	168,000
Standard Oil Co. (Ind.)	Whiting, Ind.	215,800
	Wood River, Ill.	51,300
Mobil Oil Co.	Paulsboro, N. J.	87,000
Continental Oil Co.	Ponca City, Okla.	65,000
Gulf Oil Corp.	Philadelphia, Pa.	182,000
Atlantic Refining Co.	Philadelphia, Pa.	148,000
Sun Oil Co.	Marcus Hook, Pa.	160,000

The Oil, Chemical & Atomic Workers Union is now at the make-ready stage for an intensive organizational drive on strategic petroleum targets.

So far, its officers are reluctant to discuss the campaign in other than broad, general terms.

But a booklet issued last week by OCAW listed nine plants in six states (above) whose organization "would sharply alter the balance of economic power in oil industry collective bargaining."

It said these plants were the "most conspicuous of the groups not organized by OCAW." Previously, the union had disclosed its intent to concentrate its strength on those plants whose capture would most enhance its power at the collective bargaining table.

At the union's annual convention in Cleveland last week, delegates enthusiastically endorsed the administration's plan to throw the bulk of its forces into the campaign.

The program was outlined by President O. A. (Jack) Knight, who held that "the union has done a better job of mobilizing the opposition than it has in mobilizing itself."

He said the forthcoming drive will be headed by E. Carl Mattern, and that half of OCAW's field staff and half of its funds will be devoted to the task.

This means that roughly 50 field men and more than $1-million have been earmarked for the organizing task force.

The manpower is being made available by stripping the normal field and office services to a minimum, and bypassing secondary targets.

The convention's decision to hold its meetings every two years instead of annually will save $700,000 to $800,000 a year. Knight said this would be devoted to the organization effort.

In addition, OCAW has asked the Industrial Union Dept. of the AFL-CIO for a loan of $250,000, and has requested its locals to come up with another $250,000.

To prepare for the future, OCAW delegates also set up a special $1-per-member assessment to build up its defense fund. The assessment is voluntary.

The plan includes creation of a special department of organization within OCAW. That is the job assigned to Mattern, who hails from Dallas, and who started in the oil business as a rig builder.

Mattern made these comments:

"The first period will be spent converting those organizing programs we have under way into a new, over-all program.

"In the near future—45 to 60 days, conservatively—roughly half of the field staff will be engaged in organizing work.

"We will proceed, after that, in any direction in which good opportunities appear."

Knight told the convention that he too planned to spend most of his time in the organizing effort.

"For years we led in wage and working conditions," he remarked. "In the past few years, the steel and auto workers have gone ahead of us. We are now third."

Knight stressed that the targets in the refineries will be the independent unions. In the oil fields, in bulk marketing, and in other areas, it will be the non-union workers.

Earlier this year, OCAW surprised many oil men by ousting the Baytown Employees Federation as the bargaining agent for the Humble Oil & Refining Co. plant at Baytown, Tex.

The independent Federation had been entrenched there for 23 years. It was this victory that made some union men suddenly realize that independent unions represent a more fertile field than they had thought possible.

Contract negotiations with Humble are expected to get under way shortly.

OCAW currently is engaged in a major effort at the country's largest refinery, at Baton Rouge.

In the contest are the local independent union; OCAW; the Metal Trades Dept. of New Orleans, AFL-CIO; and the Teamsters.

OCAW members currently are striking the Sugar Creek (Mo.) plant of Standard Oil Co. (Ind.), where OCAW won a bargaining election earlier this year. They also are striking American Oil Co.'s Texas City (Tex.) and El Dorado (Ark.) refineries. These strikes have been going on since early summer.

The issue of jurisdictional disputes

with a sister union drew fiery reaction at the Cleveland convention.

The delegates approved, by acclamation, a threat by Knight to withdraw from AFL-CIO's "Miami Agreement," which spells out the jurisdiction of OCAW and the Metal Trades Dept.

Knight charged that the Metal Trades group had "completely disregarded" the agreement.

"I believe in labor unity," he said, "but only if there is equal treatment for all concerned."

The delegates also amended the OCAW constitution to empower the executive board to "affiliate with other major labor bodies by executive vote." This also means that the executive board can "disaffiliate" if it so desires —and raised the possibility that it may withdraw from AFL-CIO. The union also struck "AFL-CIO" from its name. OCAW sources say there are no plans afoot to disaffiliate, but that the objective of the amendment was to give the executive board a free hand to move speedily in any direction. Otherwise, a constitutional convention would be necessary to approve any decisions.

U.S. Holds Firm on Submerged Lands

Millions of dollars in future royalty payments were at stake this week as the U.S. Supreme Court heard three days of oral argument on state vs. federal ownership of submerged lands lying more than 3 mi. offshore in the Gulf of Mexico.

Solicitor General J. Lee Rankin argued the submerged lands case for the federal government. He offered the seven justices (Warren and Clark had disqualified themselves) a blend of history, definition, rules of statutory construction, and foreign policy to bolster his contention that some of the Gulf Coast states could claim boundaries extending more than 3 mi. offshore.

The government's case is that no state can claim an offshore boundary greater than that claimed by the federal government.

For 150 years, Rankin said, the federal government consistently had adhered to a 3-mi. limit. Therefore, he said, none of the states can claim more.

Three justices—Frankfurter, Harlan, and Whittaker—peppered Rankin with questions.

Whittaker, in particular, wanted Rankin to spell out what effect passage of the Submerged Lands Act of 1953 had on the court's earlier ruling that the federal government had paramount right to offshore lands beyond the 3-mi. limit.

The major question in this case, Rankin replied, is congressional intent in passing the Submerged Lands Act.

"What you must decide," Rankin told the court, "is what did the federal government intend to relinquish?"

Congress didn't intend to validate the boundary claims of Gulf Coast states when it passed the Submerged Lands Act, the government's attorney argued. What Congress did, Rankin contended, was to tell the states in effect that all submerged lands between the shore and 3 mi. out belonged to them, and that they could increase their boundaries to three marine leagues—if they could prove their claims. To support this interpretation, Rankin quoted from statements made by proponents of the Submerged Lands Act while its passage was being debated in Congress.

Several times in the congressional debates, Rankin said, proponents of the measure said the act would not give the states anything more than they already had. Congress didn't attempt to settle the boundary claims of the states, he added, but merely gave the states the right to go to court later to attempt to prove their claims.

Arguing for a technical and narrow interpretation of the Submerged Lands Act, Rankin contended that terminology giving the states the right to the same boundaries they had "at the time" they entered the union wiped out any boundary claims made while they were territories.

A territory is part of the federal government, Rankin reasoned. Therefore, it is bound by federal policy. If the federal government doesn't assert a boundary claim beyond 3 mi., then a territory can't do so on its own. On this basis, Rankin would have dismissed the boundary claims of all the states that are party to the present proceeding except Texas, which was an independent republic at the time it was annexed to the U.S.

Texas, the federal government conceded, has a three-league boundary claim based upon its treaty with Mexico.

But after Texas entered the union, Rankin said, Texas had no obligation —or right—to maintain any previous agreements in the foreign policy field.

At the instant Texas was admitted as a state, Rankin said, foreign relations formerly conducted by the Republic of Texas were in the hands of the federal government.

Did the federal government adopt the Texas claim to a three-league boundary in the Gulf of Mexico? Rankin said no.

He told the court that in the same year in which Texas was admitted into the union, both the federal government and Mexico, in interpreting the Treaty of Guadalupe Hidalgo, told Great Britain that there was no intent on the part of the U.S. to increase its offshore claims beyond the previous 3-mi. limit.

To meet these arguments, lawyers representing the states, including Jack Gremillion, Attorney General of Louisiana, and Will Wilson, Attorney General of Texas, argued that the federal government's interpretation of the Submerged Lands Act runs contrary to the intent of Congress.

Argument by the Solicitor General that the Secretary of State, in setting foreign policy, is the final arbiter on offshore boundaries claimed by the U.S. in its dealing with other nations, overlooks the fact that Congress has acted in this field, state lawyers said.

Gremillion contended that Congress has the right to set boundaries, and that it did so in the Submerged Lands Act.

"The plain purpose of Congress should not be thwarted," Gremillion argued. "If there is a national boundary in the Gulf of Mexico, it is three leagues," he added.

Counsel for the states also contended that Congress was fully aware of the boundary claims of the various Gulf Coast states when the Submerged Lands Act was passed.

If Congress wanted to restrict the state boundaries to 3 mi., they would have said so, lawyers argued.

In a gas case, the Supreme Court refused to review a Kansas Supreme Court ruling that already involves some $60-million in refunds claimed by pipeline companies from natural gas producers, and could lead to still more claims.

The question was whether a Kansas Corporation Commission order, setting minimum wellhead prices for natural gas effective Jan. 1, 1954, was valid until the Federal Power Commission acted in July, 1954, or whether it was invalid from the beginning.

World Surplus to Last 'Several Years'

That's the view of Jersey Standard, which has 13% of free-world output and reserves. It plans to trim capital spending while reducing excess capacity.

The oil industry's environment will be "somewhat less favorable" during the next several years, but by 1975 free-world demand will require the production of more than 30-million b/d, according to M. J. Rathbone, president of Standard Oil Co. (N.J.).

He told the New York Society of Security Analysts this week that the growth in demand by 1975 will require the production of 14-million b/d more oil than the 16.6-million b/d that was consumed in the free world in 1958.

The rate of growth in demand in the free world during the next several years will be at the rate of 5%, compared with an annual rise of 8% in recent years.

The 5% worldwide rate, Rathbone said, will reflect a growth of about 3½% in the U.S. and 6½% in the free foreign areas. That would compare with a postwar growth rate of 6% in the U.S. and 12% in other free areas.

The lower expected rate of demand increase, he explained, will be a result of more intense competition from other fuels, a slowing down of the extraordinary surge in oil use that accompanied the rebuilding of war-devastated Europe, completion of the conversion from coal to oil in U.S. home-heating markets, a slowdown in the postwar expansion in automobile ownership, and improved efficiencies in oil use.

The industry will have to live with excess capacity pretty much around the world for the next several years, Rathbone predicted.

He noted that the greatest surplus capacity is in the producing end of the business, but that a "substantial" surplus of shipping and refining facilities also exists.

"Though I believe this extra margin will tend to shrink with the passage of each year, it will certainly last long enough to maintain for some time the unusually intense competition that has characterized world oil markets for the past year or two," Rathbone said.

Jersey Standard, which accounts for 13% of the free world's production and reserves (table, below), plans to operate in the future with a smaller margin of reserve capacity.

"We think we will be able to do this by improving our operational programming techniques and by relying in some measure on supplementary product purchases from other suppliers," Rathbone said.

Among other things, Rathbone noted, such a plan will result in "substantial" savings in new capital, will permit a greater over-all use of existing plants, and will increase the return on Jersey's invested capital.

The company already has speeded up its realization of savings made possible by its heavy investments in automation and mechanization in all branches.

Rathbone noted that Esso Standard Oil Co., for example, handled 20% more crude in its refineries in the first half of 1959, with 1,700 fewer employees, than it did in the first half of 1958.

Rathbone predicted that during the next several years the company's annual capital expenditures will fall below the $1-billion level—$400-million under its peak capital outlay in 1957. The company plans some shifts in the goals of its capital spending program.

"Until recently," Rathbone said, "it has been essential to concentrate a large part of our new investments on projects designed to assure the long-term growth of our company . . . However, because of our already-established strength for the long pull, this year we have been able to concentrate a greater part of our spending on projects that should produce more immediate profits.

"We expect to continue this policy into 1960 and for as long thereafter as seems desirable."

The plan to merge Jersey's principal domestic affiliates—Humble Oil & Refining, Esso Standard, Carter Oil, Oklahoma Oil, and Pate Oil—into one company "is still another step which we believe will generate real benefits for the immediate future as well as for the longer term," Rathbone commented.

The discovery of oil in Libya is

Jersey's Output, Reserves are 13% of Free World's

	Crude, Gas Liquids Production (thousands of b/d)							Reserves of Crude, Gas Liquids (millions of bbl.)	
Area	1954	1955	1956	1957	1958	First Half 1959	Pct. of Area Total	Dec. 31, 1958	Pct. Area Total
United States	422	452	474	467	410	454	**6.3%**	4,293	**11.7%**
Humble Oil	363	390	406	394	332	368	.....	3,928	.....
Carter Oil	59	62	68	73	78	86	.....	365	.....
Canada	85	95	105	98	78	84	**16.9%**	781	**21.1%**
Venezuela	743	879	972	1,037	979	1,030	**36.1%**	10,045	**58.5%**
Other West. Hem.	35	35	36	39	38	36	**7.0%**	266	**5.5%**
Europe, Africa	14	24	34	39	40	42	**16.3%**	257	**4.6%**
Middle East	357	385	403	400	444	475	**10.6%**	16,080	**9.1%**
Far East	35	36	33	33	39	41	**8.5%**	164	**1.6%**
Total	1,691	1,902	2,057	2,113	2,028	2,162	**13.0%**	31,886	**12.6%**

significant to Jersey Standard's future because of the "very low cost —both in terms of unit operating costs and in terms of capital investment required," Rathbone said.

The discovery, he noted, is west of Suez and close to the principal European markets. He added that its location only 100 mi. inland, and the relatively shallow depth of the producing horizons, indicate that it will be "very low-cost" oil.

The value of such new discoveries as in Libya during a period of oversupply of crude, Rathbone said, is that "our ability to get new business and to hold onto our existing customers in the face of intense competition is greatly enhanced by having several different sources from which supplies can be obtained."

He added: "I have in mind not only the advantage of supply location . . . but also the advantage of greater range of choice in selecting the lowest-cost source of supply . . . ."

In planning for the future, Jersey Standard will continue its research efforts to find new uses for oil. Rathbone said its two research organizations will spend almost $63-million this year—a new peak in research outlays.

El Paso Rate Case Heads to Court

El Paso Natural Gas Co. plans to seek relief in the courts in the tug of war over a rate increase it has been waging with the Federal Power Commission.

Last week, FPC turned down El Paso's request for a rehearing on a rate hike application of $18,841,000 annually to its California customers. The action by FPC amounted to an adamant reaffirmation of its Aug. 10 order, which allowed El Paso a rate hike of $14.5-million.

The difference in figures touches on a major issue in natural gas rate-making, which could have an impact throughout the industry.

The dispute between the commission and El Paso stems from FPC's handling of federal income taxes in establishing rates for the pipeline company.

To compensate for percentage depletion and intangible drilling tax provisions that the commission allowed El Paso to include in its costs in determining a fair return, the commission reduced the percentage return sought.

In setting the $14.5-million annual increase in rates, FPC allowed El Paso an 8.61% return on its "well-mouth" properties and a 6% rate of return on other properties. The two figures produced an over-all 6.35% return on the company's entire rate base.

El Paso argued that it is entitled to income tax provisions providing an 8.61% return on well-mouth properties, plus a 6% return on all properties as net income clear of taxes.

The question that the courts will be asked to decide is how shall percentage depletion and intangible drilling provisions be treated in determining a gas company's federal tax and rate of return?

El Paso is counting on the courts to render some form of eleventh-hour relief.

The company's reasoning goes something like this: The damage suffered under the FPC decision, as it now stands, is perhaps not irreparable. In any event, the company can't possibly come out any worse by turning to the courts.

FPC will resist any method for computing special income tax provisions which departs from the initial El Paso decision.

This week, in fact, the commission asked the Supreme Court to establish firmly the principle that the interpretation of natural gas rate contracts is the commission's job, and that such interpretation, if reasonably supported by evidence, "must be accepted by the courts."

Unless such a principle is made firm, FPC told the high court, anyone dissatisfied with an FPC decision on rates can seek a new factual interpretation in the courts. The result, the commission declared, will be endless litigation.

The particular case involved the interpretation of a "favored-nation" clause in a contract between Shell Oil Co. and Texas Gas Transmission Corp.

FPC ruled that the favored nation clause applied only to new contracts signed by Texas Gas, not to rate redeterminations under existing contracts. Shell, seeking a higher price for gas sold to Texas Gas, won a reversal of the FPC ruling in a federal court. Both FPC and Texas Gas appealed to the Supreme Court.

In the recent final arguments in the long-standing Phillips Petroleum Co. case on producer prices, FPC made it clear that taxes which were never actually paid would not be allowed as a credit in establishing rates of return.

Oil Man's Album

Oil's Old Faithful Keeps on Pumping

The McClintock No. 1 is still pumping an almost negligible two barrels a week, just enough to give it the record of the world's oldest continuously produced well. It was completed in 1861 on the Hamilton McClintock farm, near Oil City, Pa.

(No. 35 in a Petroleum Week series.)

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What's New / IN THE INDUSTRY

Standard Oil Co. (Ohio), which has been seeking more outlets, confirmed this week that a merger with Leonard Refineries, Inc., is imminent. An official said that details of an exchange of stock are being worked out, which probably would involve an offer of one Sohio share for each 3.45 shares of Leonard stock.

•

Continental Oil Co. this week came up with a new electronic process to protect steel from corrosive acids and salts. D. A. Shock, director of Conoco's central research division, told the National Assn. of Corrosion Engineers in Denver that the process "will completely stifle corrosion from sulfuric, nitric, and phosphoric acids, caustic soda, and aluminum sulfate for indefinite periods of time." The process uses an electrode system and a device called an electronic controller to form an extremely thin oxygen-containing film over the steel, and to control the protective film electrically. Conoco tested its new process in its Baltimore (Md.) petrochemical plant for one year. Result: It entirely eliminated corrosion of equipment for that period.

•

Pan American International's latest exploration move may take it into Egypt, possibly in a joint venture with the state oil authority. The company declined comment this week on Cairo reports that it has been granted a two-month option to survey the big Western Desert concession surrendered last year by the Conorada-Cities Service-Richfield group. If a firm offer is made, it presumably will provide for the state participation which Cairo recently indicated it would require for any new grants.

•

W. L. McClusky has been elected 1960 president of the American Assn. of Oilwell Drilling Contractors. McClusky, of M. J. Delaney & Co., Dallas, was secretary-treasurer last year. Other national officers include Herbert Woolf, Woolf & Magee, Inc., Tyler, vice-president; and E. Dale Mount, Dale Mount Drilling, Inc., Dallas, secretary-treasurer. Eight men were given Meritorious Service Awards, presented for the first time this year. They are: Arthur Lubinski, Pan American Petroleum; Henry Woods, Hughes Tool; Stanley Moore, Drilco Oil Tools; C. J. Davidson, Davidson Drilling; Earle C. Flesher, Johnson & Flesher Drilling; Will I. Lewis, Will I. Lewis Drilling; John Woodruff, Petroleum Extension Service, University of Texas; and F. A. York, Miller & York.

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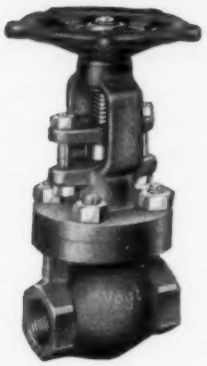
Prediction: 2¼-million "smaller" cars will be produced for 1960; 1¾-million of them will be "compact." That's the opinion of George Romney, president of American Motors, who makes that play on words to distinguish imports from the "compact" U.S.-built economy models. Romney has posted a production target of 500,000 Ramblers, leaving a sales potential of 1¼-million to be shared by Corvair, Falcon, Valiant, and Lark.

•

Paul Wollstadt has been named to the newly created position of vice-president, employee and public relations, Socony Mobil Oil Co. He came to Socony in 1951 from Platt's Oilgram and National Petroleum News, McGraw-Hill publications. In 1958 he became assistant to the chairman of the board and manager of Socony's public relations. He will be succeeded as manager by Don Sweeny, who has been manager of the Mobil International section of Socony's public relations department.



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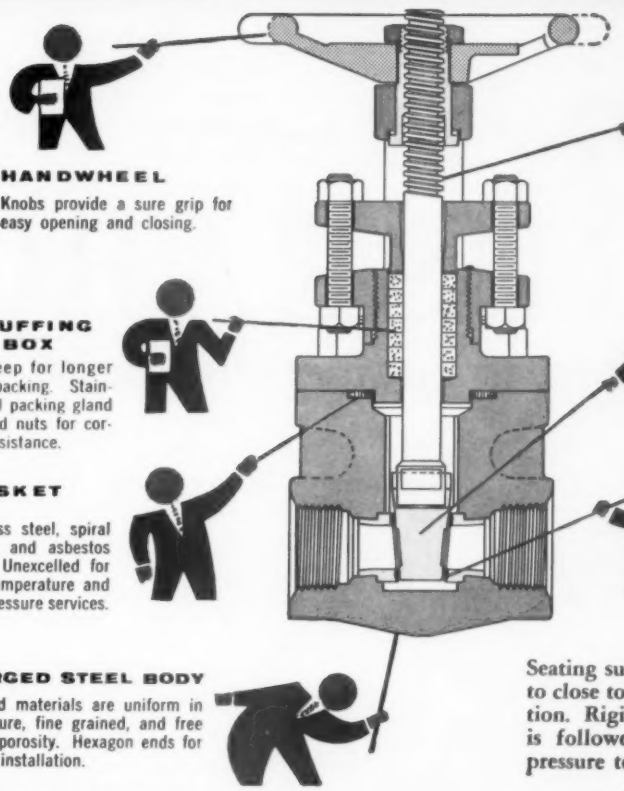

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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
October 16, 1959

Canadian gas cases are moving into the foreground at the Federal Power Commission. Applications are pending for natural gas to be imported from Canada to the Upper Midwest, to California, and to northern New York State.

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The commission will hear oral arguments next week on Midwestern Gas Transmission Co.'s proposal (page 54). Midwestern, a subsidiary of Tennessee Gas Transmission Co., wants to import 204-million cf/d of gas which would be provided by Trans-Canada Pipelines, Ltd. FPC turned down an earlier effort by Midwestern to bring the gas to the U.S. when several existing pipelines pushed competitive proposals. But the commission indicated then that the Canadian gas was needed in the Midwest, and that it would look with favor upon a new proposal. And, perhaps more importantly, FPC has hinted it will not require issuance of an export certificate to Trans-Canada by the Canadian government as a prerequisite.

Midwestern will ask the commission to hurry its decision—by Nov. 1, if possible. That's when Midwestern's contract with Trans-Canada becomes subject to cancellation if FPC authorization has not been received. Midwestern fears the sales price will jump if another contract is required. To this end, FPC is cooperating. The commissioners have omitted the usual intermediate examiner's decision and scheduled oral arguments for Oct. 20. A few months ago, Midwestern was given little chance to meet its Nov. 1 deadline. Now the odds have shifted to a quick FPC decision.

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Examiner hearings are starting on a Canada-to-California gas plan. Pacific Gas Transmission Co. is asking authority to import up to 456-million cf/d of gas from Canada for delivery to its parent San Francisco company, Pacific Gas & Electric. Included in the project are facilities worth almost $130-million, including a 614-mi. pipeline from near Kingsgate, B.C., to the Oregon-California line. The gas would be distributed in northern and central California. The proceedings were scheduled to start before an examiner late this week; they also involve plans by Pacific Northwest Pipeline Corp. to buy about 152-million cf/d of Canadian gas from Westcoast Transmission Co., and Montana Power Co.'s proposal to purchase 30-million cf/d from Canada.

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Hearings are resuming this week on Canadian gas for New York. The case pits St. Lawrence Gas Co., which wants to distribute about 10-million cf/d in St. Lawrence County, N.Y., against an application by New York State Natural Gas Corp. for authority to sell gas to Niagara Mohawk Power Corp. for distribution in St. Lawrence and two other counties. St. Lawrence Gas, which would purchase indirectly from Trans-Canada, claims its prices would be lower than those proposed by Niagara Mohawk.

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A controversy is already shaping up on congressional sponsors for the next natural gas bill—if and when. Some gas distributing companies are insisting that the utilities must lead the fight, with sponsors other than southwestern senators and representatives. Producers don't agree, and will oppose the idea.

Dr. Perez Alfonzo

'We Don't Mind Losing Some Markets'

Editor's Note—The following article, the first of a two-part series, has been approved by Dr. Perez Alfonzo as an authorized official expression of his views.

CARACAS—Independent American oil companies that bought Venezuelan concessions in 1956-57 can expect no sympathetic understanding or assistance in their problems from the present administration. In fact, if they have to shut down or sell out because of the increasing squeeze between rising Venezuelan tax, labor, and other costs and restricted market outlets, that will be "okay" with the government.

This was one of many points clarified here by Dr. Juan Pablo Perez Alfonzo, Minister of Mines & Hydrocarbons, in half a dozen long discussions at his home with this reporter.

And what the 55-year-old Perez Alfonzo thinks, counts. For he is widely considered the initiator—not just executor—of the Betancourt regime's oil policy.

* * * *

The Minister recently told the National Congress he was examining the possibility of annulling the new concessions granted by dictator Perez Jimenez, but that the government might have to refund "much more" than they are now worth.

"High prices were paid for those concessions on the assumption that the situation would look good," he declared. "Now the exact opposite has occurred."

Asked if the government might consider some relief, such as reducing excessive over-pricing of royalty oil, or tax credits for new investments, Perez Alfonzo told this reporter:

"The people are very much against these new concessions, which were granted against their will. The companies should have known better than to take them. They knew the risk they were taking.

"I couldn't help them if I wanted to. And I don't want to."

Will the government enforce the 15% refining obligation in new concessions even if, in today's market, it would be almost impossible for the companies to sell those products?

Perez Alfonzo's reaction is a shrug of the shoulder: "They signed those contracts. We'll be legally correct in enforcing them."

Anyway, Perez Alfonzo adds, reclining in the garden of his modest home at Los Chorros at the base of the Avila Mountain peak:

"The existence of numerous foreign oil companies is not good for Venezuela. It means unnecessary duplication of functions, staff facilities, etc. They are a waste of money to us."

Personally, he would prefer to see only "four or five large efficient oil companies" in Venezuela.

* * * *

The rest of Perez Alfonzo's policy comments add up to little better news for the other, longer-established oil companies, who are worried about the increasingly uncompetitive position of Venezuelan oil, and are alarmed that the Minister shows no signs of seeing the need for some new incentives to push Venezuelan oil in world markets.

The Minister's answer is simple:

"I don't want Venezuelan oil pushed in markets. I want Venezuelan production leveled off."

Perez Alfonzo says he's even perfectly happy to have Venezuelan oil "lose its proportionate share of the market growth." Those losses are O.K., he explains, because they're "only losses in increases, not in volumetric production."

He says he wants Venezuelan production to grow no more than 4% to 6% a year (all that's needed, he says, for government budgetary needs; the rest of the oil should be "conserved for future generations"). World demand, however, is growing at 7% to 8% a year, "so we can lose a lot of proportionate market growth and still increase our volume of production modestly."

To maintain Venezuela's share in markets would require Venezuelan oil to meet the competition of lower-priced Middle East oil, he points out. "We don't want that," he declares. "We want our oil prices maintained at the traditional level of the U. S. market."

He is bitterly opposed to any "two-price" system where Venezuelan and Middle East "cheaper oils" are priced below the higher-cost, protected U. S. oils "just to please the consuming countries."

Oil, Perez Alfonzo declares, is too valuable a natural resource to producing countries to be priced in relation to "costs" or to be handled as "common merchandise" . . . "Excess production should not be used as a pretext for lowering prices."

The Minister says he recognizes perfectly well that this policy will mean further losses of Venezuelan markets in Europe, Africa, and Latin America (Middle East crudes are already being refined right at the edge of Venezuela, in Trinidad).

* * * *

The only thing that worries him is that Venezuela's markets in the United States may also be "progressively captured by cheaper oils" to the point of an actual volumetric drop in Venezuela's production.

For this reason, he is pressing a two-fold program:

(1) To persuade Washington to give Venezuela a "guaranteed, fixed market" by allotting it a specific country share of the total import quota. He would then take this quota and prorate it among Venezuelan producers, insisting that they price the oil no lower than equivalent U. S. crudes.

(2) To persuade Middle East producing countries to join him in an international compact to prorate production and stabilize prices.

So far, neither has become a reality. Last May, the U. S. turned down his demand for "Western Hemisphere preferences" and a special Venezuelan country quota. At the Cairo Oil Congress last spring, Middle East delegates expressed common interest with Venezuela in "stable prices," but no actual proration agreement has been reached.

Nevertheless, Perez Alfonzo continues to exude optimism on both proposals. He maintains that the Middle East governments will eventually learn that excess production is not in their interest, particularly if prices fall further.

And he is confident that the U. S. government will eventually give in to his demand for a guaranteed market, because it is "to the U. S. interest" to maintain alternative Western Hemisphere supplies "in order to avoid too great a dependence on Middle East oil."

* * * *

Furthermore, Perez Alfonzo seems absolutely convinced that the present world oil surplus will be short-lived, and customers soon will "beat a path to our door."

He simply does not believe the commonly accepted industry view that the world oil surplus is already so great, and large new supplies are being found at such a fast rate, that it will take at least ten to fifteen years for world demand to catch up.

Look at what he recently told the Venezuelan National Congress:

"Our oil situation is very favorable. World demand is showing a progressive increase, yet is not matched by discoveries of new fields which would increase the reserves and guarantee future consumption. The consuming countries eagerly search all over the world for new deposits.

"Our present situation is not one of begging for markets for our oil. We have information indicating that foreign countries will come begging for it, as they have in former years . . . The consuming countries know this very well."

(New reserves found last year in the free world were sufficient to supply the world's total demand of 6-billion bbl. and still add 10-billion bbl. to total proved reserves. To this Perez Alfonzo replies that this is not all from "new fields," that most of it was found in the same Middle East areas and as additions to older fields, "which doesn't count.")

* * * *

Perez Alfonzo also makes these points:

• He is not interested in further exploration of open areas in Venezuela at the moment, because 'only 7.3%" of the present concessions "are being worked," so there is a "very wide margin" for future development within present concessions.

Thus, he says, the companies could theoretically multiply their activities 14 times, and "consequently our proven reserves of 17-billion bbl. could also be multiplied by 14, to 230-billion bbl."

• He is "not disturbed" by the fact that new drilling has been slashed in Venezuela (only 57 rigs in operation Sept. 1 against 89 a year ago) nor by the fact that seismograph activity, the barometer of future exploration, has fallen more drastically in Venezuela than in any other major area (only one seismic crew now operating in Venezuela compared to a peak of 35 last year).

• Nor is he disturbed by the fact that the profitability of Venezuelan production has fallen drastically to far below other major areas.

For instance, the net profits of Creole, the biggest and most profitable Venezuelan producer, tumbled from 94.5¢ per bbl. in 1957 to 60¢ in 1958, after Venezuela's retroactive tax rise. This year they've shrunk further, to an estimated 48¢ per bbl.

For the Venezuelan oil industry as a whole, per-barrel profits slumped from 88.9¢ in 1957 to 55.1¢ last year, and to an estimated 45¢ this year.

This is way below U.S. profits. Published reports of four key U. S. independent producers showed net profits of 82¢ per bbl. last year, while such integrated companies as Continental Oil and Humble netted 86¢ and 92¢ respectively (with Humble's net earnings for the first half of 1959 rising to $1.23 per bbl.).

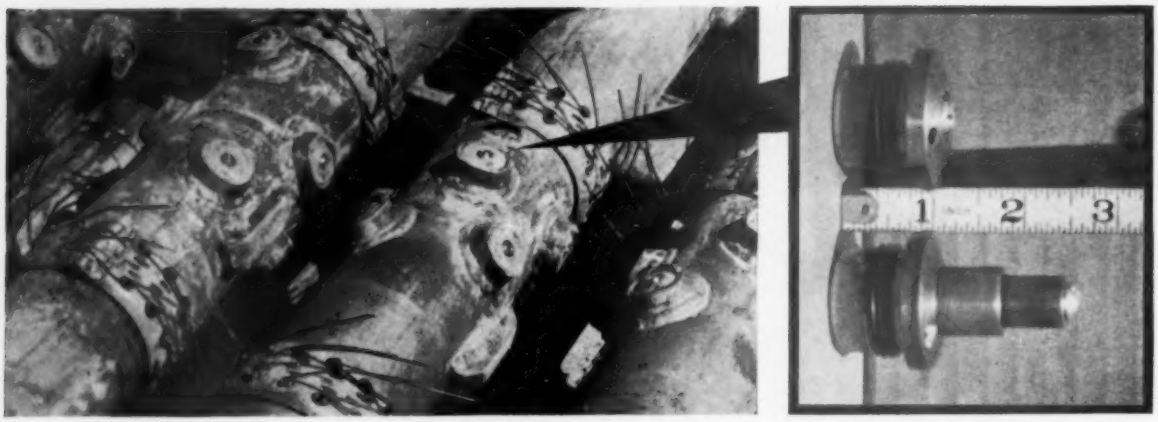
In the Middle East, current profits range from 60¢ to 80¢ per bbl. in various countries (even after this year's price drop).

The outlook in Venezuela is further darkened by additional potential cost increases. A costlier labor contract is now under negotiation (with the union's initial demands adding up to a whopping $1 per bbl. increase in oil labor costs). New cost increases are also being piled on in the form of recent government decrees adding extra manpower on trucks and launches (to ease unemployment), an extra payroll tax for "apprentice training," and new restrictions on duty-free imports of materials required by refineries.

In this situation, oil companies have little incentive to run Venezuelan oil in their refining and marketing outlets in the United States or elsewhere, when they can run their other crudes in the same outlets at double the profits.

Perez Alfonzo replies that this ignores the matter of returns on dollar investment, which are higher in Venezuela than in the U. S. (but lower than in the Middle East.) "Besides," he points out, "there is the question of alternative sources.

"There are many places other than Venezuela where earnings don't compare with the Middle East, yet their production is kept going—like Peru and Colombia," he declares. "Incentives are not merely a question of dollars and cents, but of many factors, including the security of the source."



PRODUCTION STRING (left) has collapsible tubes that are extended (right) through the cement to the pay face. These . . .

'Perforations' Are Built Into Casing

A well-completion method that entails cementing of production string through the pay zone, then treating and producing the well through "ready-made" perforations, is soon to make its commercial debut.

The method, known as "passive perforating," or the "permeator" technique, was invented several years ago by Myron Zandmer, president of National Petroleum Co., Calgary.

Since that time, 11 field tests have been made in Canada, Southern California, and Utah.

Plans call for the method to be introduced commercially late this fall —probably in Oklahoma.

In addition, equipment has been shipped to Austria, where it will be used in a hole now being drilled. And the method will be used soon in a 10,000-ft. Hassi Messaoud development test in the French Sahara.

R. W. Coburn, vice-president of Stiles Engineering, Inc., Tulsa, will engineer and supervise field use of the method in the Southwest.

The new completion concept is based largely on the use of a small, relatively simple device—the permeator.

This, Coburn explains, consists basically of stubby, telescoping steel tubes run on casing or tubing in collapsed position.

Once in the hole and positioned opposite the producing formation, these tubes are extruded under hydraulic pressure to make contact with the pay face.

Each permeator is fixed on the production string by being screw-threaded into a housing or "blister," which has been shop-welded over 2-in. ports drilled through the pipe wall.

In the conventional model, the internal diameter of the permeator base is 13/16 in. The larger of the two telescoping tubes is ¾ in. OD and the smaller is ½ in. OD.

A 7/16-in. orifice is provided at the contact point with the pay face.

Other specially designed models are available.

In the extruded position, each permeator extends out 2½ in. from the production string. This means that permeators may be run effectively in holes having diameters up to 5 in. greater than the pipe.

The tubes need not be extruded to maximum length, however, to be effective. Ratchets automatically lock the tubes in place and, once they are extruded, they can't be retracted.

The permeator completion method involves both cementing and well-stimulation operations. Here's how a typical job is done:

Regular casing or 2⅞-in. tubing (for tubingless completions) is run to total depth with cement shoe and float collar attached.

Pipe set opposite the pay zone is equipped with permeators.

Cement is pumped down the pipe between plugs (the Perkins process), followed by a sufficient quantity of acetic acid to cover all permeator ports.

As the last of the cement slurry is pumped, a plug separating cement from acid is lodged in the shoe, stopping circulation. (A third plug is used to separate the acid from the mud or other fluid that follows.)

When the second plug bumps, the pumps are kept running until the hydraulic pressure is raised to around 1,500 psi. above normal cementing needs.

This pressure is maintained for about 10 minutes, during which time the acetic acid dissolves a magnesium retaining ring and allows the permeator's two telescoping tubes to move outward through the wet cement.

The well is then shut in.

Acid is retained in the casing for about 10 hours after the permeators are extruded. During this period, the acid eats away sealing plugs and a zinc diaphragm, opening the pipe to the pay zone.

Acid is then admitted to the interface of the well bore, giving a slow, low-pressure acid treatment in the immediate area of the permeator port.

A stainless steel ball check with duraluminum seats prevents formation fluid from flowing back into the pipe during the period of slow acidizing.

This keeps the well effectively shut in and under control.

A simplified model of the permeator, designed for use in low-pressure wells, eliminates the ball seat valve.

Once the cement has set, the well is ready to be treated.

Introduction of hydrochloric acid dissolves the duraluminum ball seats and opens the well to production.

The operator can, at his discretion, acidize the well, fracture it, or conduct both operations simultaneously. The permeator is well suited for use with ball sealers, by virtue of its precision-machined seats, and selec-

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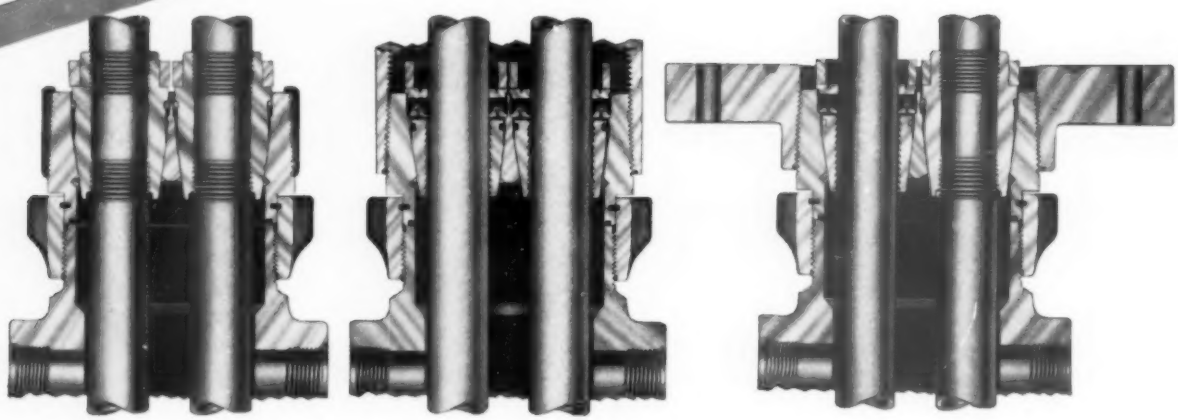

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tive treatment is generally recommended.

Two prototype arrangements have been made for positioning the permeators about the production string —one for 2⅞-in. tubing (tubingless completions), and the other for standard-size casing.

Casing models have their blisters arranged 90 degrees apart around the circumference of the pipe, with four to six blisters to the foot.

In the tubing models, the blisters are arranged at 60-degree offsets to one another, having their centers spaced about 3 in. apart.

Groups or "clusters" of the permeators commonly are spaced 1 ft. apart on tubing and 2 ft. apart on casing.

Tubing blanks carried in stock are machine-prepared in 2-ft., 4-ft., 6-ft., 8-ft., and 10-ft. pup joint lengths.

Determination of the number of blisters per cluster, and their spacing about the pipe, can be made on the basis of electric log analysis or at the operator's discretion, just as in conventional perforating.

Scratchers to prepare the well bore, and guides to protect the blisters, usually are run on the blanks between the permeator clusters. These are optional.

Permeators are well suited for tubingless completions, especially when multiple strings are run. Down-hole perforating has been a big problem in multiple tubingless completions, due to orientation difficulties.

Several instances have been reported in which parallel strings were accidentally perforated at the same interval.

Better tools and knowledge have helped several service companies overcome this problem, but the absolute on-the-ground orientation possible with permeators makes the method one of the surest for this form of completion.

One of the more recent applications of the permeators was in a Home Oil Co. development well in Alberta's Swan Hills field.

Home's No. 10-20 A was drilled to total depth of 8,340 ft. Intermittent shows in the Devonian were encountered from 7,495 ft. on down to total depth. The net pay section was approximately 200 ft.

Casing—5½-in.—was landed on bottom in the 9-in. hole. The string was made up to include a total of 784 permeators arranged in clusters of six and spaced at 2-ft. intervals down the pipe. Scratchers and guide blocks were run between clusters.

The casing was cemented with 1,330 cu. ft. of 2-1 light pozzolan mix tailed in with 23 bbl. of expanding (magnesium oxychloride) cement.

Then 59 bbl. of acetic acid were run in on top of the cement, and the slurry was pumped with 137 bbl. of water under 800 psi. After the top plug bumped, pressure was raised to 3,000 psi. to extrude the tubes.

Stimulation was with 5,000 gal. of 15% inhibited hydrochloric acid. Selective treatment was not tried, but the operator reportedly plans to rework the well using ball sealers when the decline curve indicates that such action is warranted.

Production rate in the well so far has been comparable to other wells in the field that were completed in the conventional manner.

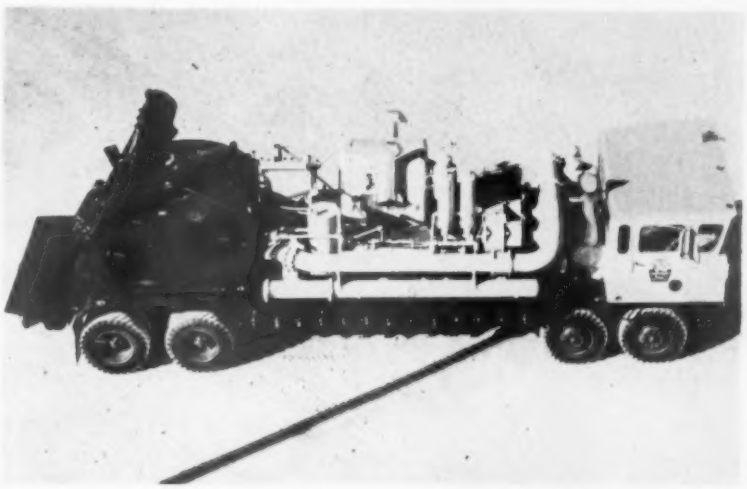
The fact that no explosives are used is a major advantage of the permeator.

"This," says Coburn, "does away with shattered cement and loosened bonds; prevents compaction of the reservoir rocks; and eliminates carrots and bullets in the bore hole and fluid passages. Communication between zones, one of the major causes for failure, is eliminated."

Also, says Coburn, "the steel 'pipelines' through the cement from the casing to the pay face reduce the possibility of cement deterioration through action of formation or treating fluids."

Although the permeator method has been proved mechanically sound by field tests, it is not without some disadvantages. Among them:

- No channel is created in the reservoir rock itself, and somewhat higher pressures likely will be required for hydraulic fracturing. Coburn believes this disadvantage is overcome, at least in part, by the method's increased ability to put the treating fluid into every perforation at a definite and predetermined rate.
- Corrective cementing is difficult once the permeators are extruded and the cement is set.
- Faulty jobs, should they occur, can be corrected only by squeezing through the permeator ports and using conventional perforating.
- The size of the hole necessarily controls the size of pipe which can be run—to a greater degree than with conventional perforating. Hole diameter can't exceed the OD of the pipe by more than 5 in. Coburn recommends running a caliper survey before each job.
- The flat rate of $15 for each permeator compares with about $7 to $10 for bullet perforating and $8 to $11 for jet perforating (based on 100 shots at 5,000 ft. and 10,000-ft. depths). This factor, Coburn believes, will be offset in most instances by reduced down-time and increased treating efficiency.



Huge Mobile Blender Joins Work Fleet

This giant sandfrac blender—described as the world's largest—has just been put into service by The Western Co. of Ft. Worth, Tex. The company says the new unit, built by Stewart & Stevenson Services, Inc., of Houston, has almost twice the capacity of any blender in the field.

Preliminary tests indicate the mixer will handle more than 4,200 gal. of fluid per minute and more than 16,000 lb. of sand per minute. The vehicle is powered by a 280-hp. turbocharged GM 6-71 diesel engine, and is 35 ft. long, 8 ft. wide, and 13 ft. high.

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What's Ahead for Contract Drilling?

Cities Service's Warren and AAODC's Baker take a hard look at the current status and future prospects of the contract drilling industry. Their conclusion: There's a narrow road ahead, but profits can be had.

Two observers of the domestic drilling picture took a look at the contract drilling industry this week and came to the same conclusion: Times are tough, and may get tougher, but all is not lost.

The two are J. Ed. Warren, president of Cities Service Co., and Warren L. Baker, executive vice-president of the American Assn. of Oilwell Drilling Contractors.

Both spoke at the 19th annual meeting of AAODC this week, at Oklahoma City.

Reducing the unit cost of development and the expense per barrel of oil produced will lead to use of more risk capital for less-attractive drilling programs, Warren said.

Wider spacing programs, multiple well completions, and secondary recovery projects will be especially stressed and intensified in this effort, he said.

Many of these programs are aimed at producing a greater volume of oil from fewer drilled holes, and at first glance would appear to be a deterrent to drilling, Warren continued.

"But taking a larger view," he said, "the increased efficiency and lower development costs will encourage the channeling of risk capital into what were formerly unattractive programs.

"Thus, I believe a counter-balancing effect will be achieved, whereby the curtailment of drilling in one area will encourage the development of others."

The excess supply of crude, on the other hand, will continue to act as a deterrent to improved drilling conditions for several years, the Cities Service official said.

"Certainly there is nothing that we can see today except a short-term excess supply condition both here in the U.S. and in the producing areas abroad," he said.

"If we accept, as I do, the assumption that excess supply will be pressing against the markets over a considerable period of time, then we must also accept the conclusion that stabilizing costs and maintaining all factors that contribute to the rewards for drilling are minimum essential requirements."

Should conditions in the industry continue much as they are, the number of holes drilled each year should increase 2%, on the average, according to Baker.

This would mean an annual increase of about 1,000 holes—not enough to give contractors much relief from the present economic squeeze, the AAODC official said.

He pointed out that a recent AAODC survey showed that approximately 3,400 rotary rigs were available for work in the U.S.

Comparison of this survey with previous surveys indicates that about 180 rotary rigs have been abandoned as operating units in the U.S. during the past two years. This emphasizes that rig attrition is a slow process, Baker said.

The figures suggest, he added, that cannibalization, depreciation, and obsolescence have not yet made heavy inroads on workable drilling machinery, though relatively few new rigs have been purchased since 1956.

"Prospective producing profits are not likely to provide sufficient financial incentives to encourage a return to high drilling rates during the next few years," Baker said.

He explained that in the past several years there has been a major reduction in the number of new wells drilled per million dollars of income from oil production: "Only 6½ wells were drilled in 1958 for each million dollars of income from production. The ratio in 1954, 1955, and 1956 was 8 wells per million dollars of production."

Growth in future rig activity likely will be greater than the increase in well completions and footage, the AAODC official predicted.

This could be so, he explained, because the use of older-than-normal equipment is cutting into the contractors' ability to achieve faster penetration rates. He added:

"In the decade between 1946 and 1956, the amount of footage drilled more than doubled in ratio to the number of rigs operated. This trend was reversed in 1957 and 1958. Only 47,600 ft. of hole were drilled per active rig in 1958, nearly 1,000 ft. less than the 1956 average."

This inability to cut hole quite as fast with present worn equipment, Baker added, will provide work for a larger number of rigs.

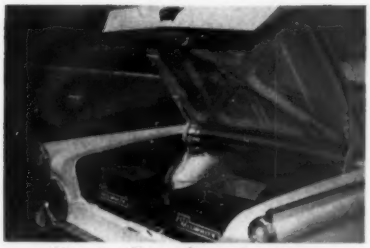
On the other hand, deterioration in penetration efficiency will seriously influence drilling costs, further intensifying the contractors' critical financial position, he said. Baker added that this latter factor is apt to offset the advantage gained by more rigs finding work.

The recent reduction in penetration rates points up the need for contractors to purchase more new and modern equipment, Baker said.

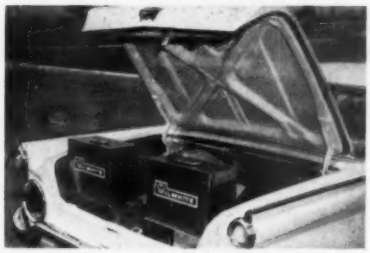
The AAODC official said that contractors' success in achieving faster penetration rates between 1946 and

WARREN BAKER, AAODC official, predicts average annual increase of 1,000 holes.

J. ED. WARREN, Cities Service Co. president, expects continuing oversupply.

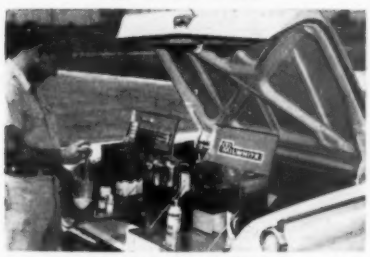


Kits in Traveling Position



Kits in Raised Position

Open for Work



Making Mud Tests

Making Pilot Tests

Portable to Work Location

MILWHITE'S PORTA-LAB

THE NEW LAND AND SEA MUD TESTING LAB

Milwhite Mud Sales Company has developed for the drilling industry a new portable mud testing lab. The Porta-Lab was designed to be both flexible and compact. It can be carried onto offshore barges or into sheltered buildings or simply worked from the trunk of an automobile.

The complete Porta-Lab comprises two separate units which resemble medium-size suitcases. They are generally installed in the trunk of the automobile on specially designed mounting brackets and are attached to the brackets by two wing nuts. The Porta-Lab can be easily removed from the trunk by loosening the wing nuts.

Each Porta-Lab unit measures 16-13/16 inches wide, 12-3/16 inches high, and 7-1/2 inches deep. They are fabricated from 18 gauge stainless steel. Fully equipped, one unit weighs 38-1/2 pounds and the other 28-1/2 pounds.

The Porta-Lab was designed to provide for two distinct phases of the mud engineer's work. One unit is used to measure all the mud properties with the exception of the funnel viscosity, mud weight, and oil content. The second unit is used to make all mud pilot tests and retort analyses.

The Porta-Lab is made to provide its own work table. When open, the top lid is hinged into a vertical position. The front side or panel is hinged to drop forward into a horizontal position to make a suitable work table.

Features incorporated in the field test lab include the mounting of the filter press on the exterior right side to allow the use of a 10 or 25 ml graduated cylinder to keep possible filtrate spillage from the other equipment. Plastic is substituted for glass wherever possible to keep breakage cost at a minimum. The positioning of the viscosimeter, filter press, and other equipment provide excellent handling balance.

In the pilot test lab, a built-in retort eliminates the need for a separate carrying case for this unit. The retort receives its heat from an LP bomb which gives approximately 10 to 15 retort analyses. Distillation time is normally faster than for the conventional electric heating elements. Another plus feature of the Porta-Lab is that rig voltage is not relied upon for the analysis. Room is also available for an optional power converter to give 12 volts AC from 110 volts AC to power the V-G Meter and mixer motor.

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MUD SALES COMPANY

HOUSTON, TEXAS

DIVISION OF MISSISSIPPI RIVER FUEL CORPORATION

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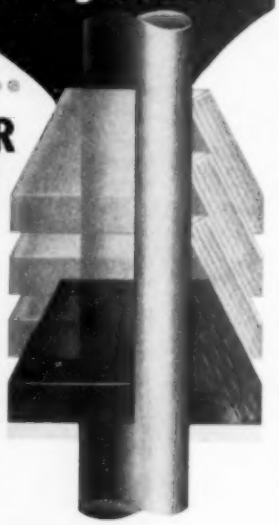

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Manufacturers of Oil Field Equipment

GENERAL OFFICES AND PLANT • TULSA, OKLAHOMA

Export Representative Oil Field Equipment Co., Inc. 90 West Street, New York, N. Y.

1956 was due to substantial purchases of equipment to keep rigs in top operating condition. "This was the way the contractors offset declining prices and rising costs," he added.

The slump in drilling activity, the reduction in number of rigs able to find work, and further erosion of prices, however, has left contractors without sufficient funds to buy equipment they know they need and would like to buy, Baker said.

"Contractors must have more work and more pay before they can correct their deplorable equipment situation," Baker added. But new equipment must be purchased cautiously, he said, so that improved drilling efficiency will be adequate to provide funds to repay the cost of any new purchases. On the other hand, some contractors will find it advantageous to replace equipment that causes too much delay and excessive repair bills.

Rio Grande Test May Spark Border Hassle

It's possible that Texas and Mexico could get into a dispute over oil development in the Rio Grande River, according to Texas Atty. Gen. Will Wilson.

Wilson mentioned the possibility in discussing the tidelands boundary case between Texas and the U.S., which he is helping argue this week in the U.S. Supreme Court.

He said Texas has been battling for over a century to preserve territory that it claimed after winning its independence from Mexico.

One unusual dispute, he said, arises from the "Bancos" in the Rio Grande —small lakes and islands caused by the river changing its course during floods.

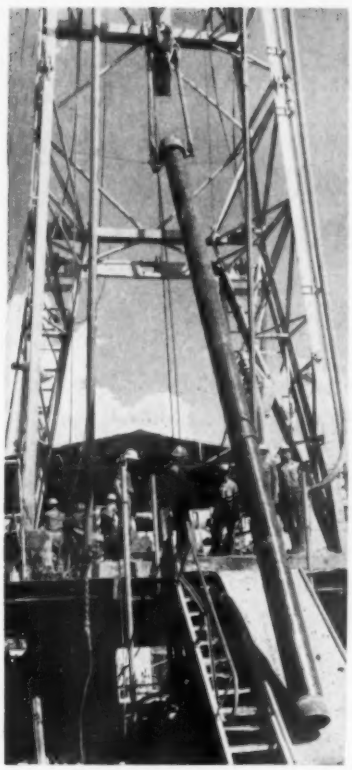
"Texas and Mexico have exchanged bites on the curious Bancos as the river has kept altering its course and changing state and national boundaries." Wilson said. "In Mexico, all minerals belong to the Federal government, not to the landowners as they do in the United States."

This may result in a three-way battle between the U.S. government, Texas, and Mexico if oil is discovered on any Bancos, according to Wilson.

"I understand one test is being drilled on a Bancos now," he said. He did not, however, specify the location.

Most of the international oil and gas development along the river has been in the lower Rio Grande, near the Gulf of Mexico, where some petroleum reservoirs extend into both countries.

HOW TO RUN CASING . . . FAST!



HOIST

STAB

WELD

40 feet of Armco casing ready to lower

There are just three steps in running Armco Casing. Line-up problems are eliminated. The Armco Slip-Joint Collar holds the next joint in alignment for a downhand fillet weld—the fastest and easiest weld to make. Running time is cut to a minimum.

Armco Casing is quickly available. Contact the nearest National Tank Company stocking point listed below. For complete details, write us for the catalog "Armco Casing for Oil and Gas Wells." Armco Drainage & Metal Products, Inc., 5629 Curtis Street, Middletown, Ohio, or 201 KOME Building, Tulsa, Oklahoma.

National Tank Company stocking points for Armco Casing: Casper, Wyoming; Clay City, Illinois; El Dorado, Kansas; Farmington, New Mexico; Great Bend, Kansas; Harvey, Louisiana; Hobbs, New Mexico; Houston, Texas; Lake Charles, La.; Liberal, Kansas; New Harmony, Indiana; New Iberia, La.; Odessa, Texas; Oklahoma City, Okla.; Pampa, Texas; Perryton, Texas; Seminole, Okla.; Shreveport, La.; Sidney, Nebraska; Snyder, Texas; Williston, North Dakota.

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ETHYL ANNOUNCES A NEW

"Motor 33 Mix" an important forward step in improving antiknock cost effectiveness

What is it? After years of exhaustive research in the antiknock field, Ethyl introduces to the petroleum industry "Ethyl" Antiknock Compound-TEL-Motor 33 Mix.

This new Motor 33 Mix is an improved and patented formulation incorporating manganese with tetraethyllead, and is the first major advance in antiknock chemistry since Ethyl introduced tetraethyllead.

What does it do? This new development will provide many benefits to both the refiner and the motorist.

1. 33 Mix makes possible a higher antiknock quality than with present antiknock compounds at the same concentrations.

2. 33 Mix improves gasoline's response to TEL making possible octane improvement at lower cost. The charts to the right show this cost effectiveness.

3. 33 Mix provides extra dimension in refining flexibility.

- 33 Mix permits greater use of natural gasoline or virgin light naphtha, economically improving road antiknock performance.
- 33 Mix offers refiners an opportunity to review future plans and delay or eliminate purchase of refining equipment for octane improvement.
- 33 Mix may enable refiners to reduce the amount of aromatics in gasoline through less severe catalytic reforming. This produces better road performance and increases gasoline yield.

How does it work? In Ethyl's new antiknock compound, there is a small quantity of manganese (.05 gram/milliliter of TEL) that has a "promoter" effect on tetraethyllead. This "promoter" effect increases with increasing TEL concentration. It varies with the hydrocarbon composition of the gasoline and, therefore, will vary with the refining situation. This suggests the possibility of selective blending and refining to take advantage of the economics of this new antiknock compound.

The most dramatic demonstration of this "promoter" action can be seen in alkylates and gasolines containing a high percentage of isoparaffins. Note on the charts that fuels showing good response to TEL show excellent response to Motor 33 Mix.

How has it been tested? Before announcing 33 Mix, Ethyl spent several years subjecting this new development to tests in 3 basic areas—in the laboratory, on the road and in trial markets. Here are some of the tests 33 Mix underwent:

1. Laboratory Tested—over 100,000 hours of dynamometer laboratory testing with both single and multicylinder engines, to determine its suitability in engines. In addition, 10,000 road ratings were made to establish its effectiveness in various gasolines.

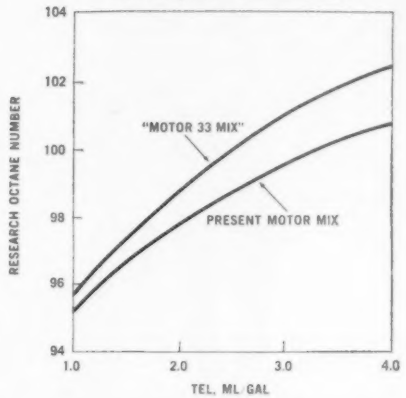
2. Road Tested—more than 7,000,000 vehicle miles in passenger car test fleets. In addition, employee-owned automobiles ran up another 1,500,000 miles of testing. No problems of any magnitude were encountered.

3. Market Tested—thirty-one companies, both large and small, participated in actual trial marketing tests for six months. Over 125,000,000 gallons of treated gasoline were sold to the public across the country with highly satisfactory results.

Further details: For complete details on how 33 Mix can be most advantageously applied to your refining situation, call your Ethyl Representative.

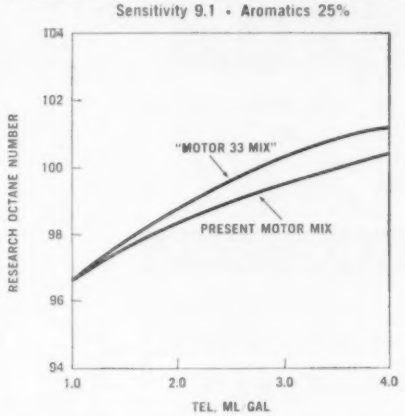
ANTIKNOCK COMPOUND

PREMIUM GASOLINE WITH GOOD ANTIKNOCK RESPONSE
Sensitivity 8.8 • Aromatics 25%



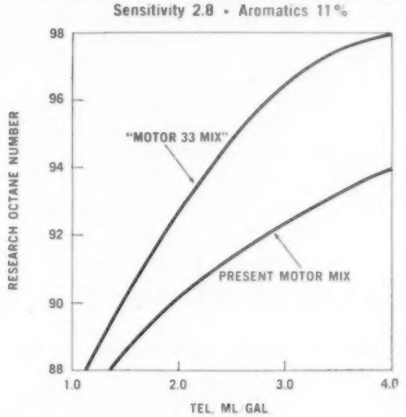
1. The octane improvement costs for the additional octane gained by using Motor 33 Mix are 4.2¢/RONB at the 2 ml TEL level and 4.0¢/RONB at the 3 ml TEL level in the octane range from 98 to 103 RON. Cost figures are very favorable since average processing cost for premium gasoline is about 12¢/RONB.

PREMIUM GASOLINE WITH AVERAGE ANTIKNOCK RESPONSE
Sensitivity 9.1 • Aromatics 25%



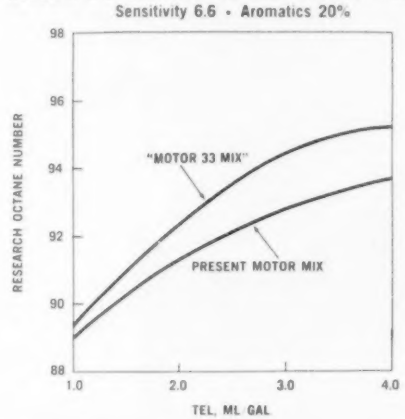
2. Octane improvement costs in this case represent a more typical premium fuel. Antiknock improvement with 33 Mix costs 8.8¢/RONB and 8.7¢/RONB at the 2 and 3 ml/gal TEL levels respectively—and this in the octane range from 98 to 100. Again, very attractive figures when compared to processing improvement costs.

REGULAR GASOLINE WITH GOOD ANTIKNOCK RESPONSE
Sensitivity 2.8 • Aromatics 11%



3. This is a case of regular gasoline with very good antiknock response, typical of premium or regular gasolines with low sensitivity. Antiknock improvement gained by using the new compound is extremely low cost: 2.9¢/RONB at the 1 ml TEL level and only 1.5¢/RONB at the 3 ml TEL level—a favorable comparison with average cost by processing for regular gasoline of 5¢/RONB.

REGULAR GASOLINE WITH AVERAGE ANTIKNOCK RESFONSE
Sensitivity 6.6 • Aromatics 20%



4. This represents a more typical regular gasoline, and here again octane costs suggest the use of the new antiknock. As with most fuels, this is especially true at the 3 ml TEL level where the promoter effect is most prominent. At this point, octane improvement cost with 33 Mix is 3.5¢/RONB — a saving of 1.5¢/RONB for this additional octane improvement when compared with cost by processing.

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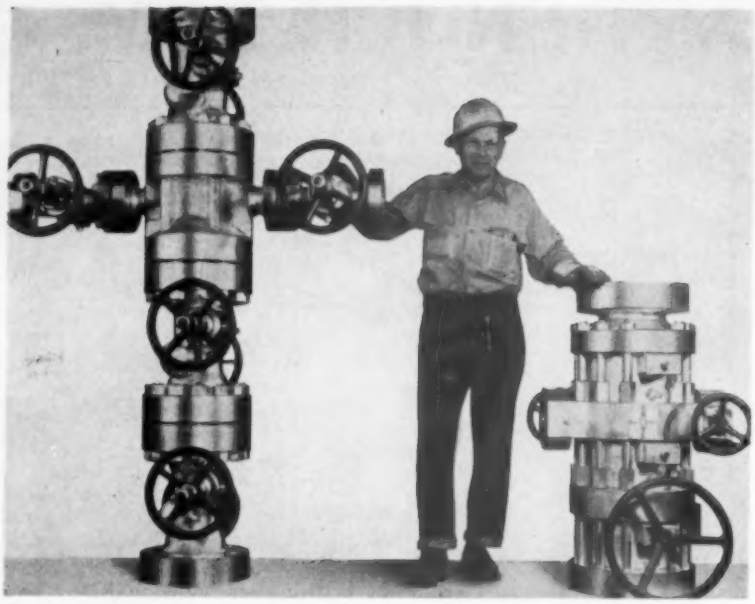


SMALLER Christmas tree valve assembly (right) contrasts with standard type as . . .

Compact Valve Unit Makes Debut

A wellhead valve assembly less than half the size of conventional types was unveiled last week by Grove Valve & Regulator Co.

Grove officials, who displayed the Valv-Pak for the first time at the Lafayette (La.) Oil Show, said:

"Besides its compactness, it is believed oil and gas producers will welcome the new design because it permits rearrangement of valves as the characteristics of the well change.

"In the past, when a well's rate of flow, internal pressure, and other characteristics were altered, entirely new assemblies were often needed."

The new design permits worn components to be changed in the field, according to Grove.

Grove engineers estimate that the Valv-Pak can be assembled or disassembled in the field in one hour or less.

Company officials added that "the Valv-Pak will be available in any combination of master valves, wing valves, tees, and bores tailored to meet individual needs."

Extreme-Pressure Lubes Aid Bits

A laboratory testing program confirms that addition of "extreme pressure" lubricants to drilling muds can extend drill-bit bearing life.

The tests were made by Hughes Tool Co. at its Houston (Tex.) research and engineering laboratory, using the EP additive developed by Gulf Research & Development Co.

A controlled mud program was maintained by the Baroid Division of National Lead Co.

The additive previously had been tested satisfactorily in the field under actual drilling conditions, but the laboratory program was designed to yield specific comparisons.

A decided improvement in bearing life was noted with the use of several different drilling fluid combinations.

In tap water, with weights representing a heavy bit load, a 100% improvement was recorded after the introduction of the EP additive and drilling mud emulsifier.

At weights representing moderate bit loads, the following improvements were noted when the additive was introduced:

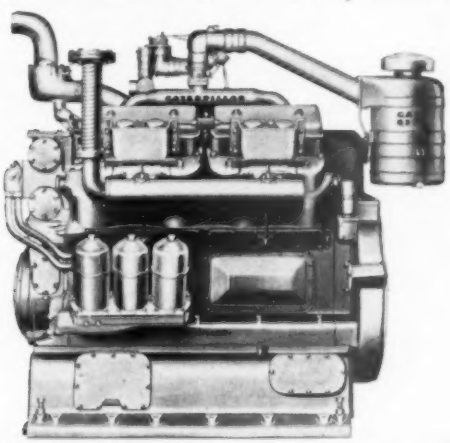
- Tap water, 700%.
- Bentonite, barite, drilling mud emulsifier, drilling mud surfactant, high-viscosity additive, 50%.
- Water-suspended limestone, drilling mud emulsifier, 50%.
- Salt water, benonite, sulfide, drilling mud emulsifier, drilling mud surfactant, 200%.

engine power
BY CATERPILLAR

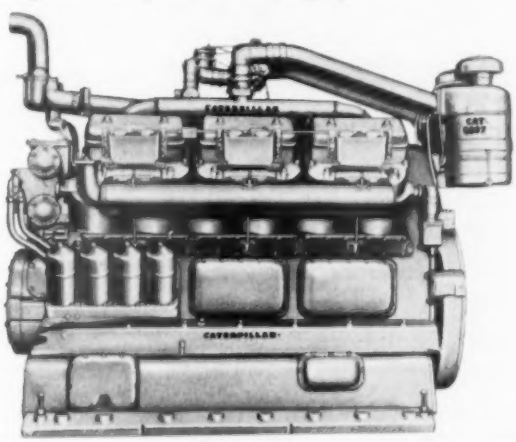
Higher horsepower ratings provide greater efficiency for oil men at no increase in cost

Although horsepower ratings for Caterpillar G375 and G397 Natural Gas Oilfield Engines are up, the purchase price remains the same. Along with more for the same money, you get all the traditional Caterpillar features—like low-tension ignition system. Safe and dependable, this system provides a hotter, more positive spark in the cylinders of all Cat Natural Gas Engines.

You can choose between two compression ratios. For operation on butane, propane or field gases, there is the 7.5:1 compression ratio. The 10:1 ratio—highest in the industry—is for operation with any methane-type gas. Of course, you can convert both engines to diesel from gas or vice versa simply by changing pistons and fuel systems. See your Caterpillar Dealer for complete new specifications—and to learn how they benefit your operation. Also, remember to specify Caterpillar for your oilfield equipment.



Rating for the G375 Natural Gas Engines, for continuous operation at 1300 RPM, without fan, now is 275 HP for 7.5:1 compression ratio. With the 10:1 ratio, it is 310 HP. New ratings for the G375 Natural Gas Electric Set with 10:1 compression ratio engine are 175 KW without fan, 160 KW with fan.



New ratings for the G397 Natural Gas Engines operating continuously at 1300 RPM without fan are 415 HP with 7.5:1 compression ratio and 470 HP with 10:1 ratio. New output for G397 Natural Gas Electric Set, with 10:1 compression is 275 KW without fan or 250 KW with fan.

CATERPILLAR

Engine Division, Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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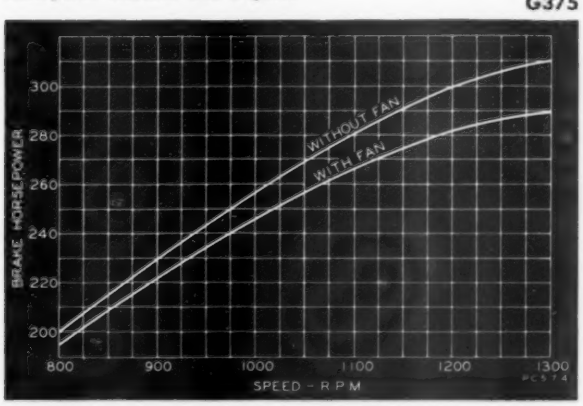
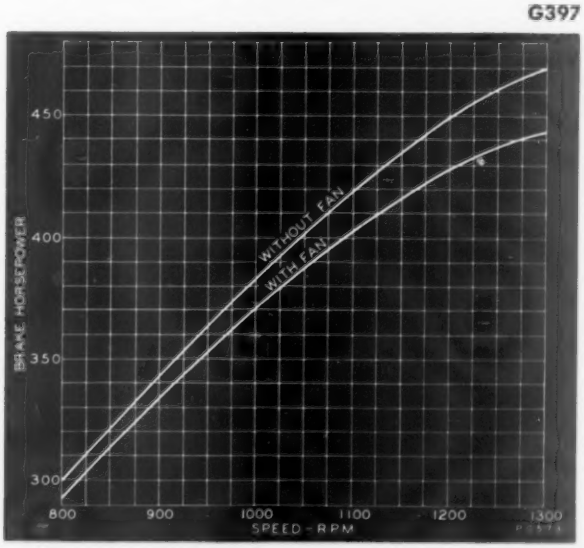
New Horsepower Curves for 10:1 CR Caterpillar Natural Gas Engines

G375



G397



What's New / IN EXPLORATION, DRILLING, PRODUCTION

Plans call for unitization on Dec. 1 of the 35,000-acre Northeast Purdy Unit, Garvin County, Okla., which will be the largest waterflood project in the Mid-Continent.

About $15-million will be spent to recover an estimated 85-million bbl. of oil (PW—Jun.26'59,p26). Cities Service Oil Co. is operator.

The total program will include 22,400 acres in the Hart formation, 10,000 acres in the Springer A unit and 2,500 acres in the Springer B unit.

The 1960 program for the unit includes development of 4,360 acres. During the first year, 43 wells will be converted to water injection and four water wells will be drilled.

Work is also scheduled to start next year on water-treating plants and lease automatic custody transfer units. A total of four water plants and seven ACT units at four locations are planned.

•

Christie, Mitchell & Mitchell, of Houston, have bought the oil and gas properties of Waterford Oil in and around Wise County, North Texas, for $5-million.

The acquisition includes Waterford's interest in some 335 oil and gas wells and 250,000 acres, plus its interest in the C. M. & M. natural gasoline plant at Bridgeport, Tex.

•

Hayes & Sprague, Inc., Los Angeles drilling contractor, is liquidating its assets and retiring from the drilling business.

The company operated two rigs.

This leaves California with 61 contractors offering 212 rigs, compared with 79 contractors and 247 rigs three years ago.

•

Directors of Canadian Western Oil, Bandini Petroleum, Westates Petroleum, and Viking-Kinsella Gas have approved a plan for merger of the four companies into a single company—Westates Petroleum Co.

The new company will have more than 350 oil and gas wells, and will operate 22 drilling rigs, in the U. S. and Canada.

Under the proposal, the company will be headed by H. W. Thompson, who is now president of Westates and its subsidiary, Hamilton Dome Oil.

•

Crude demand in the Ontario market is expected to double by 1962, according to H. G. Schnert, Jr., of Sohio Petroleum Co.

Schnert, manager of Sohio's Regina (Sask). office, said demand in the Ontario area should reach 300,000 b/d by 1962, and might even reach 400,000 b/d.

In addition, he said, it is likely that Canadian crude will have greater markets in the U. S. Mid-Continent area, due to abandonment of uneconomic wells in that region.

•

The first automatic custody transfer system on California state lands is being operated by Richfield Oil Corp.

The State Lands Commission recently approved use of the system to transfer production from Richfield's man-made island off Rincon, Ventura County.

•

Pan American Petroleum Corp. was high bidder at the recent sale of Alberta oil and gas reservations.

Pan Am paid $12,251 for an 81,132-acre parcel and $10,484 for one of 69,434 acres. Both blocks are in the northern part of the province.

Total bonus offering came to $32,622 for 326,635 acres.

•

Engineering

A new recording instrument for hydraulic fracturing and a new Insert Float Valve have been introduced by Halliburton Oil Well Cementing Co.

The Fracometer employs a pneumatic pressure pickup connection to measure wellhead pressure, a flow meter to measure injection rate in bbl. per minute, and a pneumatic analog computer to calculate hydraulic horsepower delivered to the well head.

It is used in conjunction with the Densometer, which records the ratio of sand to fluid in terms of fluid density (PW—Oct.2'59,p21).

The Insert Float Valve, designed to stand pressures up to the collapse strength of J-55 casing in all weight ranges, has a drillable aluminum valve seat. The valve is inserted inside the pipe.

•

Drilling Highlights

Montana—Mobil Producing Co. No. F-44-20 Mueller, section 20-32n-59e, Sheridan County, recovered 460 ft. of muddy oil- and gas-cut water, 2,024 ft. of oil, and 2,742 ft. of salt water on 2-hour drillstem test of the Mission Canyon at 7,992-8,162 ft. The wildcat is 40 mi. southeast of Outlook field (map) and 15 mi. southwest of Writing Rock field in Divide County, N. D. There hasn't been any drilling within 20 mi. of the prospect, which is scheduled to be drilled to about 12,000 ft. in the Ordovician.

New Mexico—Western Natural Gas Co. No. 1 Stephenson-Federal, section 17-25n-8w, San Juan County, was completed for 260 b/d of 41-gravity oil through perforations at 6,334-58 ft. in the Graneros section of the Dakota. The discovery is 5 mi. northwest of a recently completed Graneros oil and gas discovery.

West Texas—Pan American Petroleum Corp. et al No. 2 Turnbow, labor 10, league 259, Briscoe County school land, Martin County, opened Pennsylvanian oil production in Breedlove field, flowing 448 b/d of 44-gravity oil through a 43/64-in. choke on test of the Strawn, topped at 10,800 ft. Major production at Breedlove is from the Devonian.

In Andrews County, Cities Service

WELL	DEPTH	MAXIMUM INJECTION PRESSURE	PRODUCTION BEFORE SQUEEZE		PRODUCTION AFTER SQUEEZE		GAIN BBLS /DAY
			BBLS. OIL/DAY	MCF GAS/DAY	BBLS. OIL/DAY	MCF GAS/DAY	
1	9642	4800	34	153	61	593	27
2	8381	3000	30	5	52	83	22
3	9640	3600	35	224	87	323	52
4	9625	4500	40	672	50	497	10
5	8484	3700	27	339	51	700	24
6	9652	3000	53	35	83	353	30
7	8397	5200	30	32	125	238	95
8	8408	3800	15	12	129	94	114
9	9310	3600	0	0	123	760	123
TOTAL			264	1472	761	3641	497

another
TRETOLITE SERVICE
report

9-well treatment program pays for self in 2 days!

TRETOLITE "SQUEEZE TREATMENT" DOUBLES OIL AND GAS PRODUCTION

The treatment of these nine wells was simple, effective and low in cost—about $300 to $350 per well for Tret-O-lite* demulsifying chemical plus pressure pumping truck and vacuum tank truck used to carry out treatment. Most of the wells were completed through tubing, with packers set above perforations. Several were dual completions, with two strings of tubing and producing zones separated by packer settings.

HOW TRET-O-LITE CHEMICAL DEMULSIFIER WAS USED

Sixty barrels of crude were mixed with 30 gallons of Tret-O-lite demulsifier. This mixture was pumped into tubing of each well, followed by enough crude to allow about 300 feet of oil-chemical mixture to stand in tubing. Each well was then shut in for 18 to 24 hours.

RESULTS OF TREATMENT

The table at top shows how effectively the Tret-O-lite demulsifier squeeze improved production in the 9 wells.

One day's gain in production in these 9 wells was such as to pay for cost of total squeeze job in about 2 days!

*Tret-O-lite is a registered trademark of Petrolite Corporation.

Tretolite products are helping to achieve similar savings for thousands of other producers. To find out how you can profit, *ask the Man in the Red Car*. Or write to . . .

TF59-2

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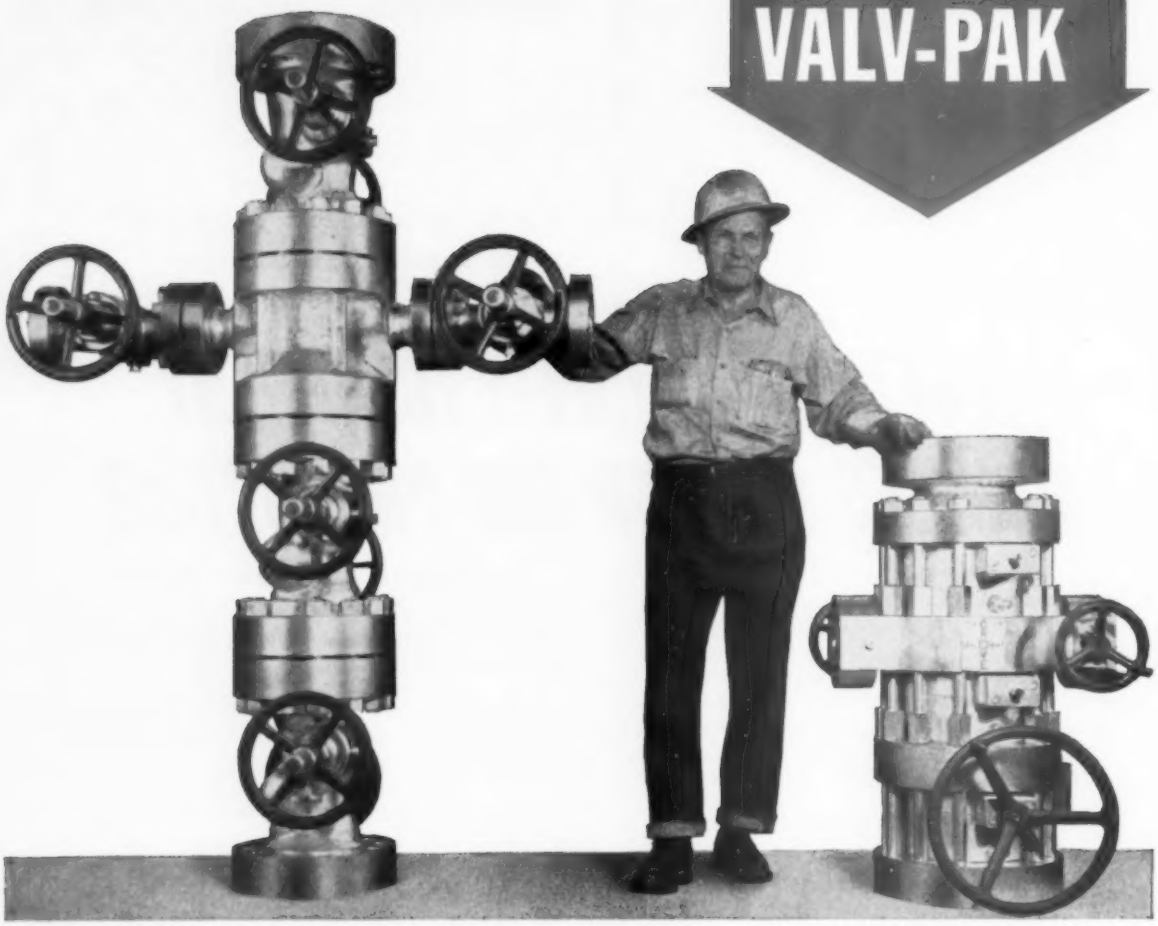
new GROVE VALV-PAK



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Maximum Flexibility! —Only Grove Valv-Pak design permits field rearrangement of valves as your well characteristics change. Individual components that must be replaced due to erosion or corrosion can be changed in the field, eliminating replacement of the whole tree, as is necessary in multiple combination units.

Compact! —Amazing vertical and horizontal compactness and lighter weight make Grove Valv-Pak handier, faster and easier to install than conventional units.

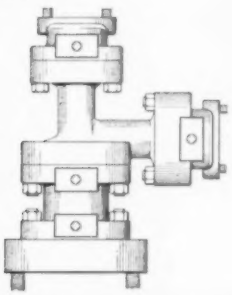
"Right Now" Delivery on Custom Units—Grove's unique design permits rapid assembly of custom units to meet your critical completion schedules on time.

VALV-PAK Tree Assemblies to meet every Completion Program

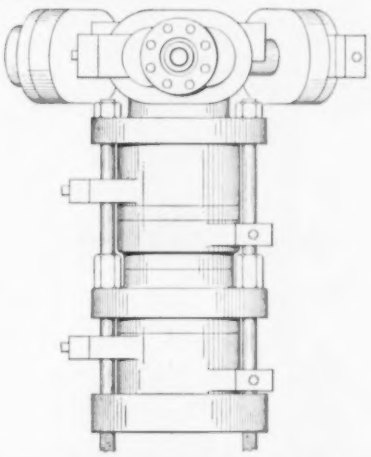
Sizes and Types

Valv-Pak may be furnished in all ranges, types, sizes and end connections presently used. Bore sizes: 1½ through 4"; working pressures: 2,000# psi to 10,000# psi. Flange connections and bore seals can be supplied to meet any Christmas Tree manufacturer's specifications.

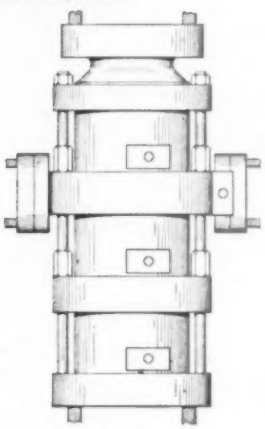
Single Completion



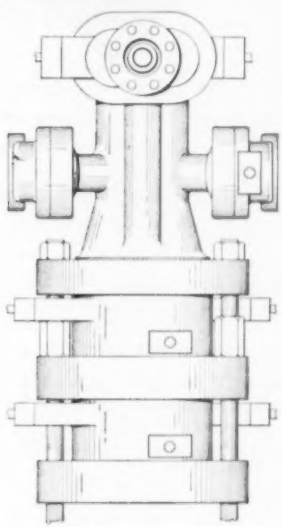
Triple Completion



Dual Completion



Quadruple Completion



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Oil Co. et al No. 1-F Brown, section 21, block A-41, psl survey, flowed at the rate of 438 b/d of 45.2-gravity oil and 152 b/d of mud and water on 17-hour test through ½-in. choke and open hole at 11,710-60 ft. The Ellenburger pool opener is ¾ mi. east of Martin multipay field.

Alaska—Drilling of Union Oil Co. of California and Ohio Oil Co. No. 1 Kenai Unit has been halted at 15,047 ft. because of a fishing job. The new state's deepest hole is now being plugged back. Union Oil also reports that commercial quantities of gas were found, presumably between 3,000-4,000 ft., where a blowout was threatened.

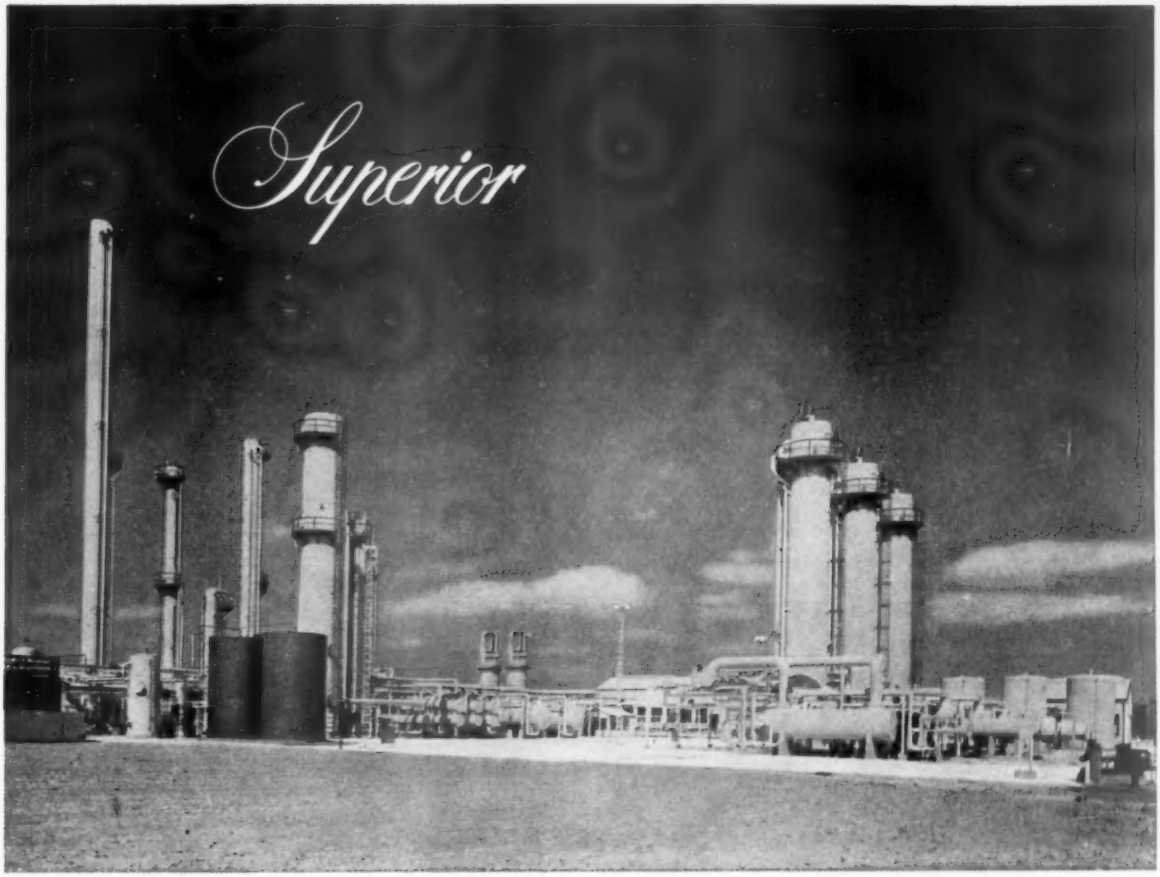
Also on the Kenai Peninsula, Standard Oil Co. of California et al No. 12-27 Swanson River Unit was tested "successfully" for gas at the 6,500-ft. level. The venture will be carried to about 12,000 ft. to test the Hemlock, the oil-producing zone in the unit.

Oklahoma—Cities Service Oil Co. No. 1-B Porter, section 5-12n-8w, Canadian County, multipay gas-condensate prospect, flowed an estimated 6-million cf/d of gas with 279 ft. of condensate and 1,017 ft. of water-cut condensate on drillstem test of the McLish at 12,620-752 ft. On earlier test of the second Bromide at 12,400-513 ft., the prospect flowed an estimated 6-million cf/d of gas. Operator is drilling ahead to the Arbuckle. The prospect is 9 mi. northwest of production.

Wyoming—Texas National Petroleum Co. No. 1 Government-Withers, section 32-20n-99w, Sweetwater County, flower 96 bbl. of 44.6-gravity oil in 6 hours through 20/64-in. choke and perforations in four zones of the Almond between 3,556-616 ft. The wildcat is 3 mi. south of the West Desert Springs gas discovery.

In Fremont County, Gulf Oil Corp. No. 1 Lysite-Federal, section 23-39n-91w, flowed gas at the rate of 11.5-million cf/d through three sets of perforations between 6,780-827 ft. Only top reported is the Ft. Union, at 4,409 ft. The discovery is 4 mi. northeast of a Wind River gas discovery at West Lysite.

Kentucky—Linehan & Stoltenberg and Amtexas Oil Corp. No. 1 Slate, Simpson County, flowed 792 b/d of 44-gravity oil through ¾-in. choke after it was brought under control following a blowout at 497 ft. in the Ordovician. The well is 2 mi. southwest of Stringer (middle Silurian) pool.



MORE THAN MEETS THE EYE

Pastel and bright color combinations used in this Hudson designed and built plant are utilitarian and also pleasing to the eye.

But beyond the eye appeal is the built-in 30 years experience of Hudson in building gas processing plants in most gas producing regions of the free world.

Such experience combined with constant alertness for improvements results in trouble-free plants, built on time, with careful balance between capital cost and operating cost to assure maximum return on the investment.

The above pictured absorption plant processing 300 million cubic feet per day of gas at about 1000 pounds pressure is located on the Mermentau River in Cameron Parish near the Louisiana Gulf Coast, and was designed and built for the Superior Oil Company.

A refrigerated absorption process is used with provision for future further refrigeration down to minus 50°F to increase gas throughput and/or product recovery. The plant has operated uninterruptedly since initial test start-up in October 1958.

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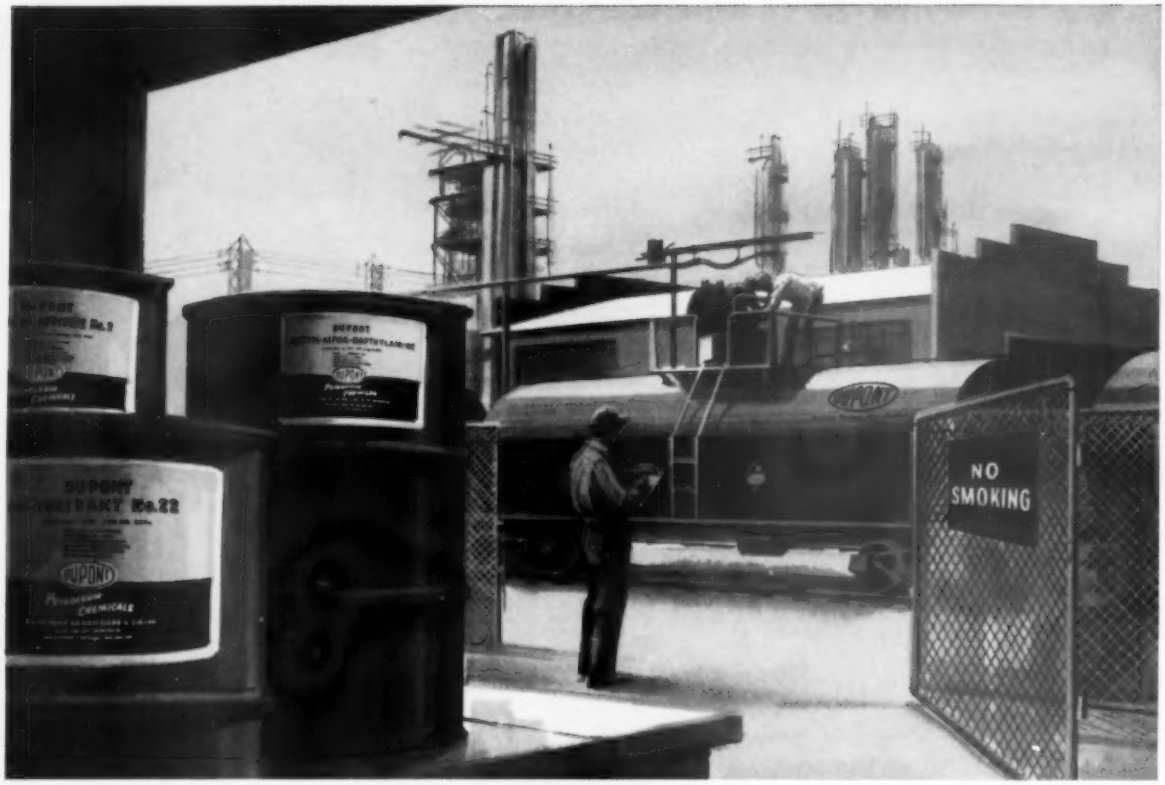

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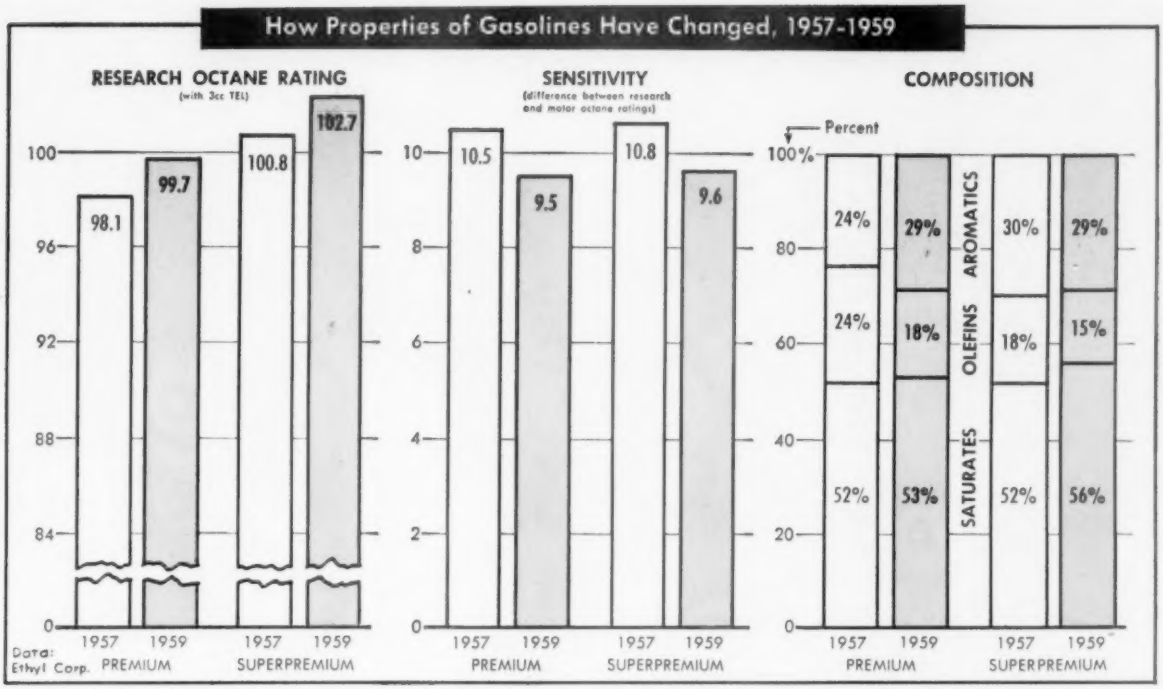


Fuel Performance Checked in 1959 Cars

A survey of antiknock performance, in current and future automobile engines, of 131 premium gasolines available in the U.S. and Canada has just been completed by Ethyl Corp.

This is the sixth such study conducted by Ethyl since World War II, as a means of keeping track of the changes in antiknock relationship between automotive fuels and engines.

The 198-page report covering that survey will be distributed to all companies in the petroleum and automotive industries. The fuels have been coded, and each of the participating refineries will know only the code for its own gasoline.

Compared to the premium and superpremium fuels surveyed in 1957, the year of the last Ethyl survey, the 1959 gasolines show an increase in octane rating, a decrease in sensitivity, and a substantial decrease in olefin content (chart, above).

Tests on the gasolines were made both in the laboratory and on the road.

Extensive laboratory analyses were made on every gasoline sample. The tetraethyl lead (TEL) concentration was kept uniformly at 3 cc. per gal. in all samples.

Five 1959 cars were used for the road tests, with compression ratios between 10.1 and 11.1 to 1. Three cars with experimental higher-compression engines (10.9 to 12.1 to 1) were also used.

Knock-rating speed range was extended, in the latest program, to include engine speeds up to 4,000 rpm. This speed is frequently attained in engines while accelerating in passing gears.

Road tests were conducted on chassis dynamometers in Ethyl's controlled-weather rooms, at a temperature of 70F ± 5F and a relative humidity of 40% ± 5%.

The survey indicates that laboratory octane ratings (research and motor octanes) provide reasonable estimates of road antiknock performances.

Whether research or motor octane number is more important depends on the car, the engine speed, and the throttle setting. Here are some of the findings:

- Low-speed performance in 1959 vehicles at full throttle depends primarily upon research octane number.
- For high-speed performance, motor octane number is more characteristic.
- The experimental high-compression cars, which may be considered representative of the cars of tomorrow, respond more closely than current cars to variations in research octane number.

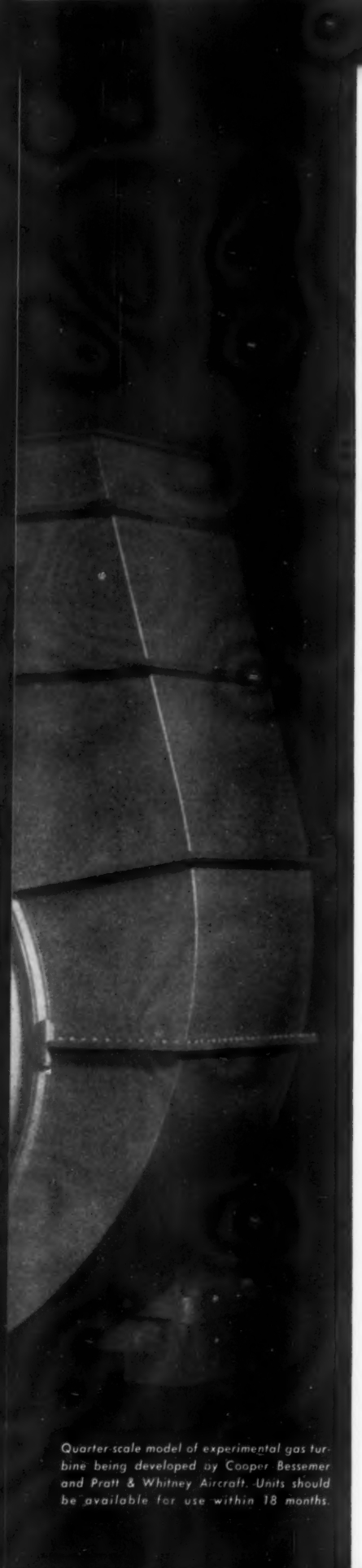
Thirty of the gasolines were also tested under part-throttle conditions in the five 1959 cars.

The results showed that:

- Part-throttle road behavior is controlled almost completely by the motor octane number.
- An increase in sensitivity (difference between the motor and the research octane number of the fuel) generally will increase part-throttle knocking.

The hydrocarbon composition of a fuel combined with its octane rating provide a good index of its road performance. The survey showed that:

- When the research octane numbers of several fuels are the same, the one with the highest content of paraffin hydrocarbons gives the best road performance.
- When both the research octane number and the sensitivity of several fuels are the same, those with more aromatics and less olefins show a better road performance at high speed. At low speed, there is little difference.



Quarter-scale model of experimental gas turbine being developed by Cooper Bessemer and Pratt & Whitney Aircraft. Units should be available for use within 18 months.

How Cooper-Bessemer is teaming up with Pratt & Whitney Aircraft to develop JET TURBINE POWER for industry

The cutaway model shown is a revolutionary new concept in gas turbines. The generating unit is a new Pratt & Whitney Aircraft jet engine—a modification of the famous J-57 aircraft engine, designed for gas fuel. The companion power unit is a new Cooper-Bessemer power turbine. This combination, now in the advanced experimental stages, represents the hottest development in industrial power in 20 years. It will mean drastic economies in installations of engine-driven compressors, generators and other rotating machinery.

For example, in gas compressor stations, it is expected to reduce total station cost by 50%!

Plans call for this new gas turbine to be available for broad application within 18 months. In the meantime, watch for reports on further developments in this pioneering teamwork by Cooper-Bessemer and Pratt & Whitney Aircraft.

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How Hydeal Process Works

Universal Oil Products Co.'s new Hydeal process for the conversion of heavy aromatics to lighter ones—such as toluene and xylenes to benzene—is essentially a catalytic hydrodealkylation.

UOP this week gave PETROLEUM WEEK additional details on the process, which it first announced a month ago (PW—Sep.18'59,p56).

The method requires the presence of a gas containing hydrogen—for example, one derived from a catalytic reformer unit. In the presence of the Hydeal catalyst, the hydrogen replaces one or more alkyl radicals in the aromatic molecule.

In the case of toluene or xylene, for instance, the catalytic reaction is specifically a demethylation, resulting in the production of benzene and methane.

The process can also convert alkylnaphthalenes to naphthalene, and coke-oven byproducts, such as cresols, to phenol.

The hydrogen-containing gas should be sulfur-free to assure sulfur-free benzene.

The process is simple, UOP explains. Here's how it works in the production of benzene from toluene or xylenes:

The feedstock is mixed with the hydrogen-containing gas, heated, and charged to a reactor, where it comes into intimate contact with the solid Hydeal catalyst.

After the reaction has taken place, the products pass to a separator via a cooler. The off-gas, principally hydrogen, is recycled to the reactor.

The separator liquid effluent is stabilized to remove the light-boiling hydrocarbons, and the bottoms from the stabilizer are distilled to secure nitration-grade benzene as the overhead product. The still bottoms are recycled to the reactor for further dealkylation.

Yields of benzene from the treatment of toluene are 90% to 95% of the theoretical reaction; when xylenes are treated, they are 85% to 90%.

A pilot plant has been in operation, and a commercial unit is at present being designed, UOP says.

The Hydeal process permits maintenance of an optimum balance between benzene, toluene, and xylenes in refineries, according to a UOP spokesman.

Although benzene supply and demand today are approximately in balance, he says, there is a definite excess of productive capacity over demand for both toluene and xylenes.

He cited a prediction by Chemical Week, a McGraw-Hill publication, that demand for benzene will increase by about 35% between 1958 and 1968, while the increase in the demand for toulene and xylene will be much lower. Furthermore, in most regions, demand for benzene is generally far higher than for the other aromatics. Hydeal should offer the solution to such a situation, he says.

The obvious route to providing additional supplies of benzene, according to UOP, is first to convert excess supplies of toluene and xylenes to benzene.

The next step is to build additional benzene capacity. And the toluene and xylenes that are usually produced along with benzene can provide further feed for the Hydeal unit.

What's New / IN PROCESSING

High-temperature jet engine lubricants and hydraulic fluids can now be produced from Pennsylvania grade oil products, according to Pennsylvania State University scientists.

"Superrefining"—saturating the oil with hydrogen—and deep dewaxing treatments are applied to the oil after normal refining.

Various combinations of additives are then used to produce a lubricant or hydraulic fluid capable of operating at temperatures ranging from —65F to 700F.

The university's study was sponsored by the Pennsylvania Grade Crude Oil Assn., at the request of the Air Force.

•

A fuel coker for preselecting jet fuels that will withstand high temperatures was described last week at a meeting of the Society of Automotive Engineers in Los Angeles.

John D. Rogers, of E. I. du Pont de Nemours & Co.'s petroleum laboratory, said the device now makes it possible to determine whether a jet fuel is thermally stable by means of a "pass-fail" test. In test flights conducted by the Air Force and Navy, Rogers said, fuel performance was accurately predicted by the fuel coker.

•

Commercial quantities of a new line of Buton resins will be available next year, Enjay Co. reports.

Facilities are now being installed at Esso Standard Oil Co.'s Baton Rouge (La.) and Bayonne (N.J.) refineries to supply about 10-million lb. of the resins a year.

•

U. S. Industrial Chemicals Co. plans to boost production of Petrothene polyethylene resins by 50-million lb. a year.

At the company's Houston plant, opened last March, capacity is now being hiked from 75-million to 150-million lb. annually. The newly planned expansion will boost capacity to 200-million lb.

USI's other plant in Tuscola, Ill., produces polyethylene at a yearly rate of 100-million lb.

•

An $18-million expansion program is set for Texaco's Pointe-a-Pierre (Trinidad) refinery.

Construction of a 100,000 b/d topping unit will boost plant output to 235,000 b/d. A 15,000 b/d catalytic reformer and a 20,000 b/d hydrotreater are also planned.

The contract for the construction has been awarded to Caribbean Bechtel, Ltd.

•

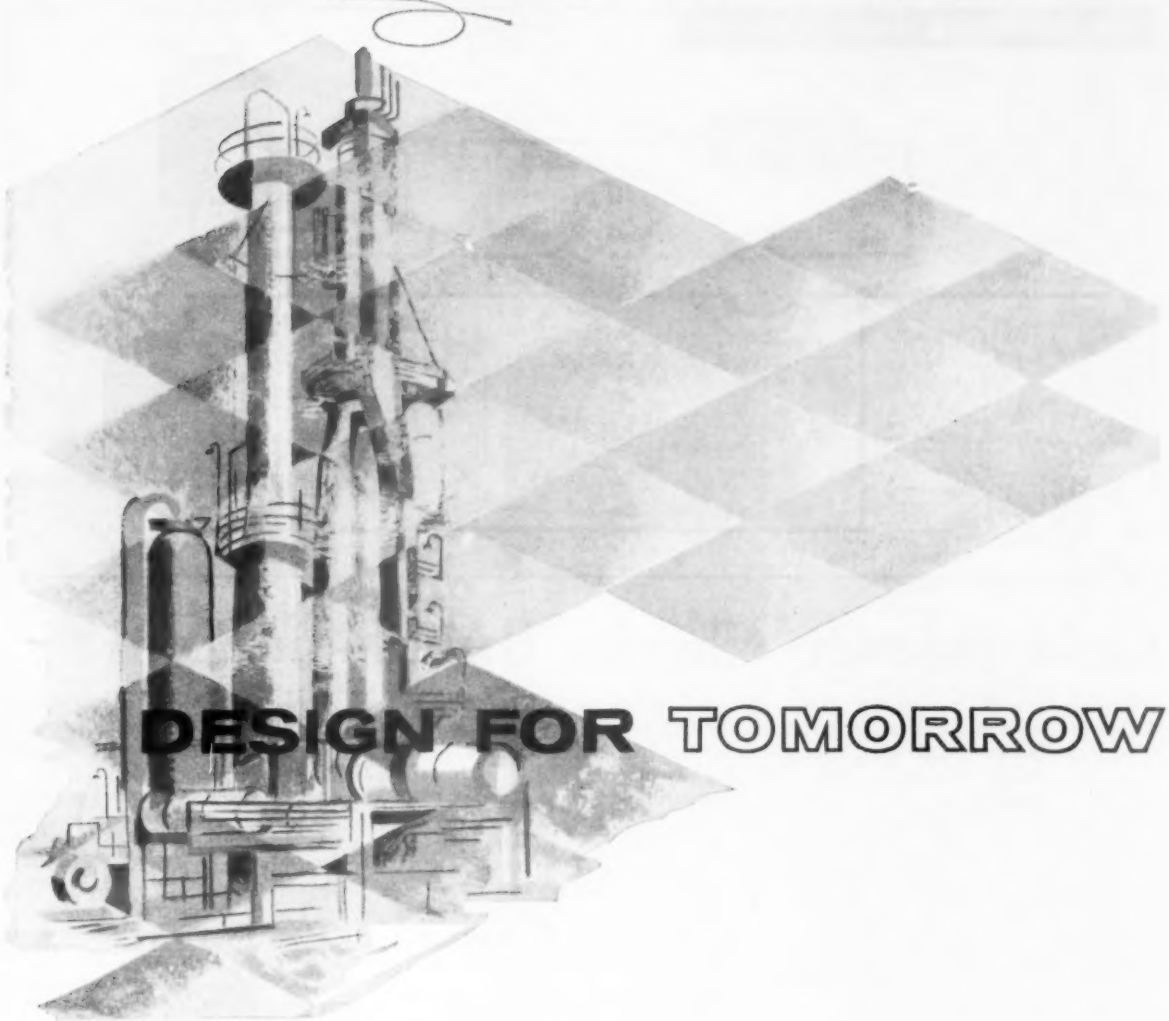
Imperial Oil Ltd. is officially opening its expanded refinery at Calgary, Alta., next Monday. Capacity has been boosted from 8,000 b/d to 14,700 b/d, at a cost of $14-million.

The new equipment includes a combination atmospheric and vacuum distillation unit, a 7,000 b/d fluid catalytic cracker, and a 3,000 b/d Powerformer. A new products control laboratory and a central control house are also a part of the expansion.

The Calgary refinery has, at present, Western Canada's only alkylation plant, for making aviation gasoline components, although another is nearing completion at Imperial's Winnipeg refinery.

Canadian Bechtel Ltd. is the general contractor. Canadian equipment and services were used wherever possible.

intangibles were never so **important**



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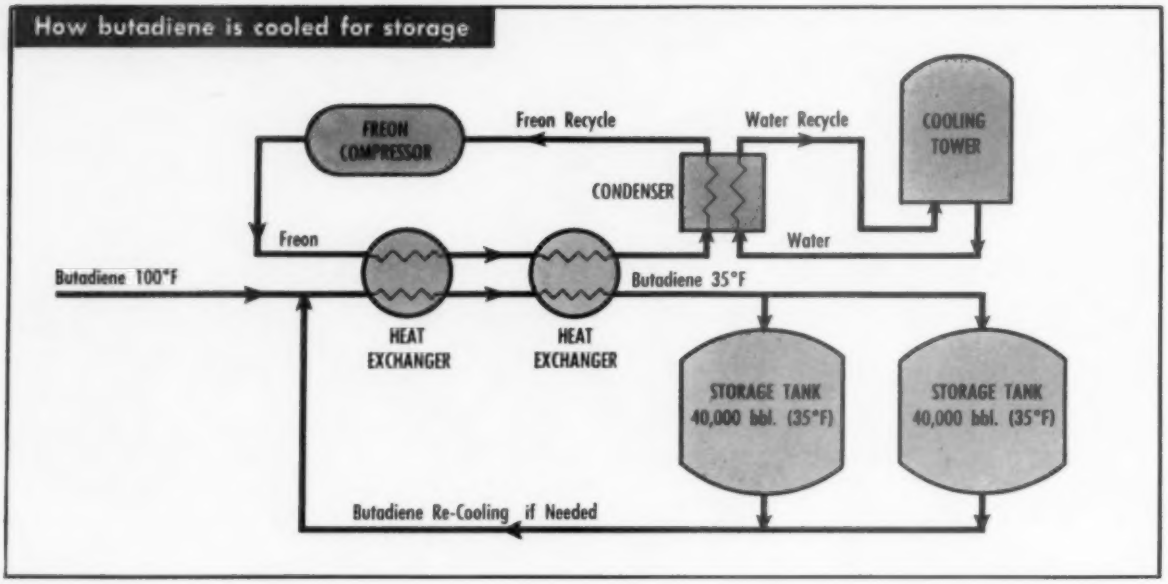


Cold Storage Checks Butadiene Loss

Construction of the world's first refrigerated butadiene storage terminal, at Galena Park, Tex., for Texas Butadiene & Chemical Corp., is nearly completed.

The terminal is being built by Hess Terminal Corp. for Texas Butadiene's exclusive use. It is slated to be put into operation on Nov. 10.

Up to now, Texas Butadiene has stored butadiene in Horton spheres at atmospheric temperature. This method of storage will continue to be used for short-term storage.

In the new terminal, however, butadiene will be stored as a liquid under refrigeration.

By storing butadiene at 35F., Texas Butadiene believes that it can be kept "indefinitely." At the higher temperatures, under which it's normally stored, the butadiene gradually deteriorates.

At temperatures above 35F., butadiene—an essential component of synthetic rubber—cyclizes, and becomes dimethyl cyclohexene. While this compound isn't harmful to the remaining butadiene, it can't be used to make synthetic rubber, and therefore must be written off as waste material.

The maximum concentration of cyclohexene in butadiene that is acceptable to synthetic rubber producers is 0.2%.

At an ambient temperature of 80F., considered a yearly average for the Houston producing area, butadiene will build up this concentration in about 13 days, according to a Texas Butadiene official.

"But at a temperature of 35F., we feel butadiene can be stored indefinitely," he says.

If turnover is quick, formation of cyclohexene isn't a serious problem. But if a company wants to build a long-term inventory of butadiene, the deterioration means dollars lost.

Texas Butadiene plans to use its 80,000-bbl. terminal for both domestic and overseas shipments.

The terminal is being built on the Houston ship channel, 11 mi. from the company's Channelview plant, which will supply the butadiene. The plant has a rated capacity of 86,000 tons of butadiene a year.

The terminal is equipped to load ocean-going tankers, tank cars, and trucks.

A Texas Butadiene official hints strongly that the terminal is a first step in a company drive to open new overseas markets.

"We want to be equipped to handle an overseas inventory," he told PETROLEUM WEEK. "We hope there's a big foreign market. We're now trying to develop one."

He added that the terminal will be able to handle the biggest ships now in use for shipment of liquid butadiene—and at a loading rate faster than 250 tons an hour.

Another advantage of the refrigerated terminal is that less shipboard equipment is needed to keep butadiene refrigerated than is required to maintain it under pressure.

This means that the same ship can move a larger quantity of butadiene under refrigeration than it can carry under pressure.

A Texas Butadiene spokesman says that the amount of equipment needed to convert a dry cargo vessel to a pressurized LPG carrier is so great that cargo capacity is reduced by two-thirds.

This isn't so when the gas is liquefied by refrigeration, he says. A refrigeration unit is lighter and takes less space than pressure apparatus. Moreover, lighter cargo tanks can be used if pressure is reduced.

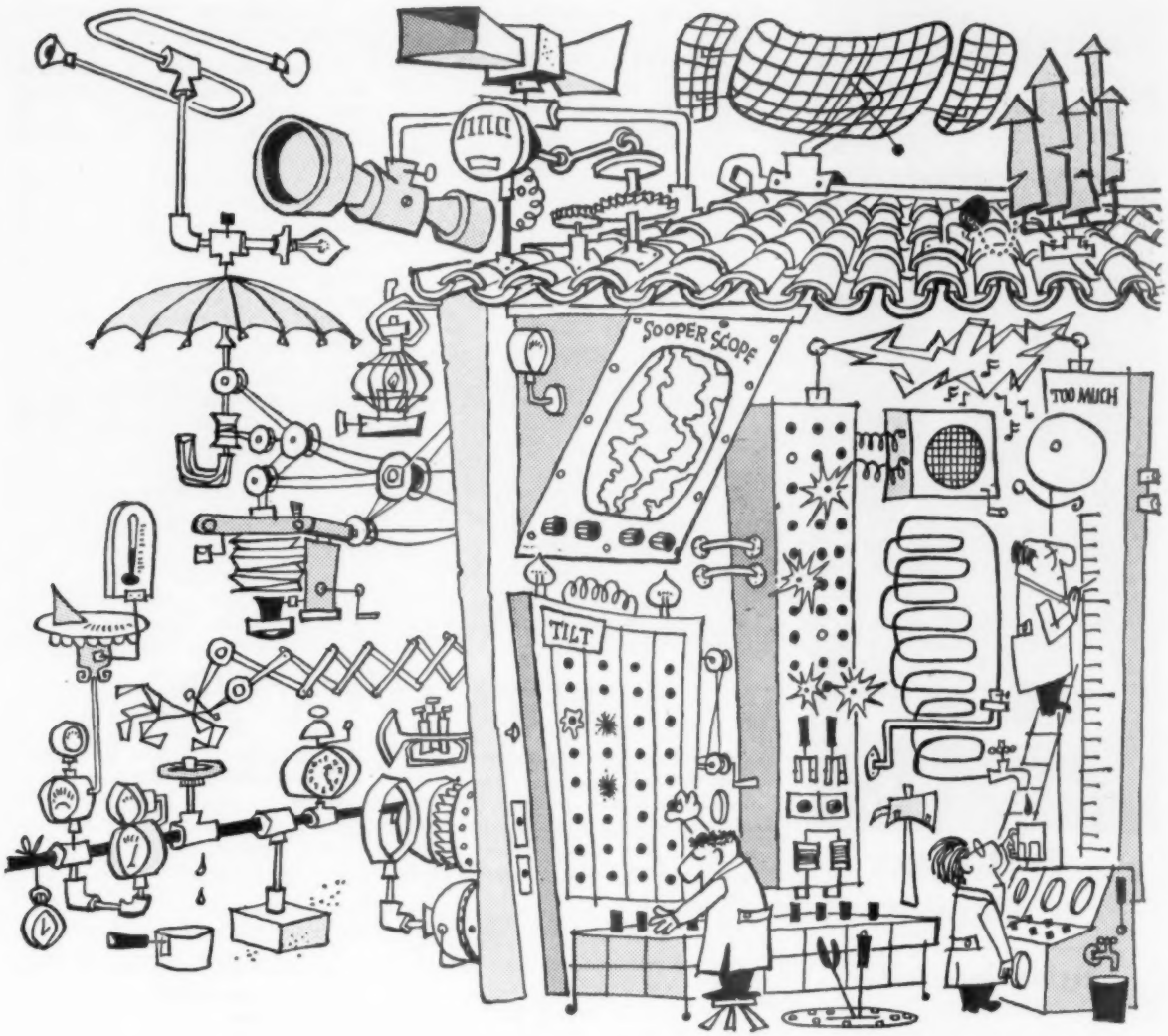
The amount of space required for ventilation is also cut, since vaporizaton is reduced by cooling. This is particularly important in the case of butadiene, because when butadiene vapor mixes with oxygen from the air, a highly explosive mixture is thus formed.

The butadiene will be stored in two 40,000-bbl. tanks at 19 psia.

The ellipsoid tanks are 60 ft. in diameter and over 92 ft. high.

They will be insulated with a 4-in.-thick glass covering.

Freon will be used to cool the butadiene in two heat exchangers be-



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OAKITE ECP your economy key

In our 50th year

fore it's put in storage (diagram, page 52).

The cooling process will work this way:

Butadiene, after leaving the company's plant, picks up heat until it reaches about 100F. When it enters the terminal, it passes through tubing inside each of the heat exchangers.

Cold freon under pressure is pumped through the heat exchangers, around the piping containing the butadiene.

The butadiene, as it flows through the exchanger, is cooled by the freon, down to 35F. Then it goes to the storage tanks.

The warm freon then passes into a condensor. Water from a cooling tower circulates through the condensor, cooling the freon. The water then goes back to the cooling tower.

The cooled freon then goes back to the compressor, where it is compressed for another cycle.

If the temperature of the butadiene in the tanks climbs much above 35F., a pressure-sensing device will automatically restart the cooling system.

As temperature increases, so will pressure. A boost in pressure over 5 psi. will actuate a relay, which will start pumps to move the stored butadiene back through the cooling cycle again.

Until the automatic relay is checked out, however, the cooling system will be manually controlled.

An insulated pipeline will connect the storage tanks with the dockside loading facilities.

The 1,500 ft. of 6-in. line will assure that the butadiene remains cool as it's pumped aboard ship.

What's New / IN PIPELINES

As natural gas began moving last week through Tennessee Gas Transmission Co.'s new pipeline into the Midwest, hope rose for a quick ruling on TGT's plan to supplement supply to that area with Canadian gas (page 23).

TGT's new 350-mi. line, which extends from Portland, Tenn., to Joliet, Ill., was put in operation early in the week.

A few days before, the Federal Power Commission ordered intermediate steps omitted to permit oral arguments next Tuesday on TGT's proposal to import gas from Trans-Canada Pipe Lines, Ltd., for the Upper Midwest (PW—Jul.24'59,p34).

Gas would be delivered through a 504-mi. pipeline from Emerson, Manitoba, to Marshfield, Wis., which would be built by Midwestern Gas Transmission Co., TGT's subsidiary.

FPC is believed to have cut red tape because of a Nov. 1 expiration date in TGT's purchase contract with Trans-Canada.

•

Natural gas is now being delivered to Texas Gulf Coast markets through Humble Oil & Refining Co.'s new 30-in. pipeline.

The 238-mi. line extends from King Ranch in Kleberg County to Humble's distribution system in the Houston and Beaumont-Port Arthur areas.

Present capacity of the line, which is being operated without compressors, is 330-million cf/d. Capacity can be boosted to more than 600-million cf/d, however, by building four compressor stations on sites already obtained along the line.

•

Arkansas Louisiana Gas Co. has opened a second pipeline to tap western Arkansas gas.

The 95-mi., 16-in. line is now delivering over 30-million cf/d from Aetna field to the company's main line near Malvern.

The new $6-million line, plus the company's existing 10-in. line, are expected ultimately to provide delivery capacity for 240-million cf/d.

•

Engineering

A new pressure-reducing gas regulator, which resembles a jet engine in internal design, has been developed by Apco Division of Textron, Inc.

Straight-through flow of gas eliminates jetting of high-speed gas and transient particles into the side of the regulator, often a major source of failures in conventionally designed regulators, according to Apco.

The smooth flow also reduces sound vibration, the company says.

VERSATILITY

SOLVES PROBLEMS IN SHIPPING PROCEDURE

The variety of large-size work which Sun Ship's shops produce is matched by a variety of equally important shipping problems. Sun's facilities for shipping by water (overseas, coastal, or inland)—directly from our plant, are often the most economical available, and when large pressure vessels, such as those shown here, are scheduled for overseas shipment, direct, plant-to-ship loading saves additional time and expense.

Inland customers benefit from our ability to pre-check clearances and schedule shipments by rail or truck before production ever begins, so that delivery on schedule . . . on budget . . . is assured. Thus VERSATILITY . . . which has been made a "standard procedure" through Sun's experience . . . is extended through one more avenue . . . Shipping Procedure.

Argentine oil program . . .

Past First Base, Rounding Second

BUENOS AIRES—Argentina, aided by U.S. firms, has passed a significant milestone in its double-barreled drive to resolve oil transport problems while developing new producing capacity.

The milestone was marked by recent completion by a U.S. construction group of the first of two major pipeline outlets for shut-in oil and gas production in the northern Salta province (PW—Oct.9'59,p92). The production is owned by Yacimientos Petroliferos Fiscales, the state oil entity.

The U.S. group, set up locally as Sargo S.A., is headed by Fish Engineering Corp., of Houston, and includes North American Utility & Construction Co., Fish North West Constructors, Inc., and Rivers Construction Co.

Sargo built the final 568-mi. southern section of the 1,022-mi. crude line—longest pipeline in South America. Starting at Campo Duran, near the Bolivian border, the 58,000 b/d, 12¾-in. line runs to a terminal at the river port of San Lorenzo, northwest of Buenos Aires.

Sargo's part of the line cost $24-million, plus $9.5-million for eight pumping stations and $3.5-million for storage tanks. The initial 200 mi. of the line, already operating, was built earlier by YPF itself. The second 254 mi., built by the local subsidiary of Techint, an Italian firm, is now awaiting inauguration along with the final section.

By the end of the year, the U.S. group that completed the 1,022-mi. northern crude outlet will also have completed a twin 1,097-mi. gas line, which will run through to Buenos Aires.

The $105-million gas line is being built entirely by the Sargo group. It's a 24-in. line, except for the final 135 mi., which is 22-in. Daily capacity is 245-million cu. ft.

The U.S. group's contract terms on both the crude and gas lines call for payment in six years, 15% in dollars, 60% in European currencies, and 25% in pesos.

Payments will be staggered: 25% in the first and third years, 15% in the second and fourth, and 10% in the fifth and sixth.

JUST COMPLETED in north is 1,022-mi. Campo Duran-San Lorenzo crude line (above), first outlet for Salta output. A Campo Duran-Buenos Aires gas line is also due for completion this year. Outlets for central and south areas are slated by U. S. firms operating there—such as Pan American, now drilling in Comodoro Rivadavia area (below).

Crude from shut-in Salta fields will start flowing to San Lorenzo shortly, with normal flow through the line expected to average 50,000 b/d, according to YPF.

Some of the crude apparently is slated for refining at YPF's 100,000 b/d plant at Buenos Aires.

Capacity of the San Lorenzo plant itself, currently 22,500 b/d, is to be expanded to 28,500 b/d next year, and is expected to reach 45,800 b/d in 1961.

In central and southern areas,

PONT-A-MOUSSON

FRANCE

SEAMLESS PIPE AND TUBES — COMPAGNIE DES TUBES DE NORMANDIE

WELDED PIPE
DUCTILE IRON PIPE
CENTRIFUGALLY CAST — SOCIÉTÉ DES FONDERIES DE PONT-A-MOUSSON

PROCESS PUMPS AND COMPRESSORS — HALBERG

PIPELINE CONTRACTORS — SOCOMAN, EAU ET ASSAINISSEMENT

PONTEX PIPE CORPORATION

SUITE 1317 116 JOHN STREET, N.Y.C

CORRESPONDENT OF COMPAGNIE PONT-A-MOUSSON & AFFILIATES

Gerep publ. PARIS

U.S. firms are slated to build another 1,200 mi. of crude and products pipeline outlets for production they themselves are developing.

These lines are part of Argentina's over-all plans to add a total of 1,778 mi. of oil lines and 2,422 mi. of gas lines to its network.

Among the other planned pipelines:

- **In Mendoza,** the Loeb, Rhoades group has a contract to build a $30-million, 12¾-in. products line, with a 28,400 b/d capacity. It will run 680 mi. to Buenos Aires from YPF's expanding Lujan de Cuyo refinery near Mendoza city. Construction will start in October, 1960.
- **In Neuquen,** Esso is financing and building for YPF a $30-million, 14-in. crude line with a 23,300 b/d capacity. It will run 393 mi. from Challaco to Bahia Blanca.
- **In the Comodoro Rivadavia area,** Pan American International will start construction next month of a $6.5-million, 12½-in. and 14-in. crude line, running 84 mi. from its inland contract area to Caleta Olivia, on the coast. The company says initial capacity will be 50,000 b/d, with provision for an increase by addition of pumping stations.

Meanwhile, Pan American International, first of the past year's new entrants into Argentina, has already racked up 10,000 b/d of producing capacity. It expects an increase to at least 12,500 b/d by February, on completion of its pipeline, and to 35,000 b/d by the end of 1960.

Up to this point, its actual output has been limited to about 3,100 b/d, capacity of an existing YPF pipeline to the coast. A new pump now being installed will shortly increase capacity to 6,300 b/d.

Pan American has now started wildcatting on its acreage, while continuing its fast-paced development drilling program.

In the nine months since drilling was started, the company says, it has completed or is now drilling a total of 63 tests on three structures, ranging from 40 mi. to 70 mi. west of Comodoro Rivadavia city.

The first wildcat is now being drilled on the Anticlinal Grande structure, the farthest inland. It is projected to basement at around 8,500 ft. Deep wildcats will also be drilled to basement this year on the other two structures.

Pan Am has 14 rigs operating, including four on completions. The company said last week it anticipates drilling "substantially" more than the 150 holes required by its contract by next July.

Stiffer Terms For Libya Acreage?

British Petroleum Co. has entirely relinquished its 25% depletion provision in Libya in return for additional acreage, PETROLEUM WEEK learned this week.

BP gave up the depletion on all its present acreage and for the two new blocks in eastern Libya's Cyrenaica province: block 80, comprising some 5,228 sq. mi., and block 81, with 19,117 sq. mi.

The company has also promised to spud a test within nine months. The oil law, by contrast, does not specify a particular date for drilling.

BP is allowed a three-month period of grace in the event that a suitable structure cannot be located or other trouble occurs within the allotted nine months.

A good portion of the acreage granted to BP had also been requested by Esso and Pan American. It is not known whether or not these companies had offered any added inducements to the government.

The grant to BP indicates that the Libyan government wants more attractive terms for new acreage.

The government has made it known that companies that offer added inducements will receive primary consideration for grants of acreage, provided that other, normal requirements are met. Some applications have been pending for some time, without inducement offers, and are still pending.

Libya shut off acreage in Zone IV, in the southwestern Fezzan, to additional bids, after the discovery of oil at Edjele, across the Libya-Algeria border. The government said at that time that applications would be considered more favorably if added inducements were offered. Occasionally the area was opened for one or two bids, but then quickly closed.

In some past cases, other operators in Libya have agreed to some limitations of their 25% depletion.

Wherever possible, the government's Petroleum Commission requires that any amount taken as depletion, and not spent on exploration, should revert back to taxable profits. Several companies have accepted these terms, which continue to recognize percentage depletion, but specify its use.

However, the giving up of percentage depletion by BP does not affect the company as much as it would affect a U.S. firm. Under British tax laws, BP would not suffer a loss as great as a U.S. firm would under U.S. laws.

The special terms of the new BP grant raise speculation as to what action the government will take next year, when concession holders whose first five-year period has elapsed will have to give up 25% of their current acreage. A rash of similar offers could break out in competition to gain some of the choice areas now under concession.

British Push Equipment Exports

LONDON—British equipment manufacturers are beginning to roll on a drive to win more export orders through their six-month-old special credit organization.

The agency is British Oil Equipment Credits, Ltd., set up by the 500 member firms of the Council of British Manufacturers of Petroleum Equipment. Its aim: to promote a drive into Latin American and other markets by arranging credit terms.

Deals with Brazil's Petrobras and an unidentified Middle East country are reported pending.

The Council says there is a large project in Latin America where the credit company may be able to assist. Two Petrobras officials are in London talking with petroleum equipment manufacturers and actively preparing to establish a London office.

The credit company's first deal was a $9.8-million agreement with Pemex of Mexico. An office was set up in London by Pemex to place its orders with British equipment suppliers under prearranged terms with the credit company (PW—May15'59,p167).

Pemex may double its orders if present arrangements prove satisfactory. The original deal called for equipment only for refinery expansion.

The credit company was formed as a result of a British trade mission to Latin America in 1957. Buyers wanted to purchase equipment in Britain on credit terms, but also wanted unrestricted access to small individual suppliers. Britain's Export Credit Guarantee Department usually will insure exporters only against risks on sizeable projects.

The benzene ring romance

His proposal was outrageous. No wonder the boss was shocked! Use a precious metal at seventy dollars an ounce . . . in a catalyst shipped by the ton?

That, said the refinery man to the lady from the press, was how this remarkable Platforming® process started: A researcher at Universal had the audacity to propose, of all things . . . *platinum!* . . . as catalytic agent in a new reforming process.

In UOP Platforming, now widely used to produce benzene and other aromatic hydrocarbons, as well as high-octane gasoline, the platinum-containing catalyst proves phenominally active and long-lived. One pound of platinum treats 1,260,000 gallons of feed stock . . . and the platinum itself is never used up!

UOP scientists have for years been noted for imagination and courage in challenging the "impossible" . . . and their ability to convert these "impossibles" into practical, profitable processes that are vital to the refining industry. That is why refiners the Free World over depend on Universal for advanced techniques to cope with their ever-changing needs.

UOP® **UNIVERSAL OIL PRODUCTS COMPANY** 30 ALGONQUIN ROAD
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More Than Forty Years Of Leadership In Petroleum Refining Technology

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More Than Forty Years Of Leadership In Petroleum Refining Technology

What's New / AROUND THE WORLD

Italians to Start Second Iran Wildcat

IRAN—Italy's Agip Mineraria is moving in a rig to spud its first onshore wildcat, south of Isfahan, in December. The site is north of the Consortium area, on a 4,362-sq. mi. tract on the east side of the central Zagros mountain range. The company is now drilling below 1,500 ft. in its first Persian Gulf offshore test.

•

LIBYA—Esso's third test on its Zelten structure has found only minor oil shows thus far. The test is being drilled below 5,950 ft. The earlier tests found oil at 5,600-800 ft.

It is not known whether the test, 6 mi. east of No. 2 Zelten, is lower on the structure, or whether a tight lime has limited the reservoir.

•

ALGERIA—The Caltex companies and Pan American International have filed overlapping bids for Sahara acreage due south of the 7,952-sq. mi. tract granted this year to Esso and its French partners.

Both bids cover a 10,039-sq. mi. stretch of the Eastern Sand Sea. Pan American applied jointly with Franco Wyoming Oil Co. for this acreage and also for two blocks totaling 965 sq. mi. north of Touggourt, previously surrendered by SN Repal.

•

OMAN—Stratigraphic drilling in the Buraimi Oasis area will be started by Iraq Petroleum Co.'s Oman affiliate, which is now drilling below 7,380 ft. in No. 1 Haima, its third wildcat, about 300 mi. to the south. A mobile Ideco H 525, capable of drilling to around 6,000 ft., will be moved in for the strat tests.

•

PERU—Regular shipments of crude from the new Maquia field to the Manaus refinery in Brazil have been started by a German-Peruvian group, according to an announcement in Germany. Ten wells have been completed in the field, which was discovered in 1957 in eastern Peru by "El Oriente," a local firm, and its three German partners—Deutsche Erdoel, Gewerkschaft Elwerath, and Wintershall.

•

INDIA—New Delhi has accepted the West German government offer of aid for its exploration program—to include equipment and German geologists. According to a report from Bonn, financial aid will be discussed.

•

LIBYA—Gulf Oil has been granted a small offshore concession in the Gulf of Sirte. The 310-sq. mi. block 79 lies just north of block 24, in the Sirte basin, which is held by a French company.

•

FRANCE—A 70,000 b/d refinery is now slated for Strasbourg, to be owned 85% by Shell Berre, 10% by Caltex, 5% by Socony. They've formed Cie. Rhenane de Raffinage to build the plant. It will be fed by the projected pipeline from Marseilles.

•

NEW ZEALAND—Other companies marketing in New Zealand haven't yet decided whether to participate in Shell's projected 40,000 b/d refinery. Under an option required of Shell by the government, potential participants in a 60% industry share are Stanvac, British Petroleum, and a local marketing firm, with 40% to be offered to local investors.

•

IRAQ—The government is about to embark on its plan to export oil products for the first time (PW—Sep.25'59,p84). The Oil Ministry announced last week that output of the newly expanded Daura refinery, near Baghdad, will be boosted to 50,000 b/d in November, with 20,000 b/d earmarked for export.

•

THAILAND—Indiana Standard is now dickering for the right to operate its proposed 25,000 b/d refinery for 20 years instead of 10 before turning it over to the government. It also wants the right to expand the plant, according to Bangkok reports.

Under the original proposal, already approved in principle by the cabinet, the company would have a monopoly on refining and crude supply for ten years, and exclusive crude-supply rights for another five.

•

JAPAN—Encouraged by the government, one of Japan's two big independents will make a trial import of 33,500 tons of Soviet crude Idemitsu Kosan says the freight charge from the Black Sea will be 78% higher than that from the Persian Gulf. A trade pact calls for imports of 100,000 tons annually.

•

Venezuela Moves In On Oil Labor Demands

CARACAS—The governnent itself is now grappling with the problem of the stiff union demands in a draft oil labor contract that it considers ruinous for the economy.

It moved in on union-oil company talks after judging as conservative the industry's estimate that the contract would add $1.2-billion, or 300%, to present $400-million annual oil labor costs. The increase alone would be equivalent to $1 per bbl. of production, far more than the total industry profit.

Wildcats in the News

ABU DHABI—A third test on the Murban structure will soon be spudded 7 mi. west of No. 2. The latter may have established the first commercial production onshore in the Trucial Coast (PW—Jul.10'59,p80). "Sustained" testing of No. 2 is being continued, Iraq Petroleum Co.'s London headquarters said last week.

IRAN—Seacat Drilling Co. will drill No. 1 Suru, the Consortium's first wildcat at the eastern end of its operating area. The 15,000-ft. test will be spudded in mid-December, 9 mi. northwest of Bandar Abbas.

IRAN—The Consortium is preparing to spud a 15,000-ft. test to seek deeper production in its shallow Masjid-i-Sulaiman field. Production there is from around 4,000 ft.

Like Today's Super-Highways...

there's more to Cities Service than meets the eye!

The New Jersey Turnpike is one of the world's greatest highways. To build it required 23 months of labor by 10,000 workers . . . a mountain of materials, including tons of Cities Service asphalt . . . and the expenditure of $255,000,000.

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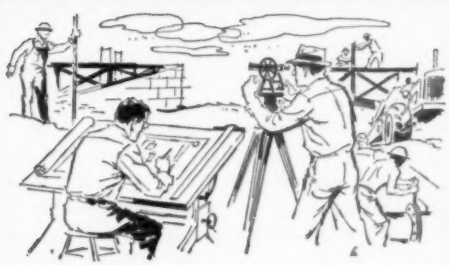
Serving the petroleum needs of America today is a big job. So that it can do its share of this job, efficiently and economically, Cities Service has invested more than a billion dollars in modern facilities.

And what of the years ahead? Building for the future . . . preparing for greater tomorrows . . . Cities Service is expanding constantly. In the past two years it has spent over $350 million on this progressive program.

Only in this way can America be assured of what she needs for progress . . . more jobs, more and better petroleum products.



It required 80,000 man hours a day for nearly two years to complete the New Jersey Turnpike. This year, this showcase of modern engineering will accommodate 41 million motorists.

CITIES SERVICE

OIL'S FIRST CENTURY—BORN IN FREEDOM WORKING FOR PROGRESS

AE-Lenkurt

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LENKURT LONG-HAUL CARRIER, for instance...

Where distance is a problem, the Type 32E Carrier Telephone System is one of the Lenkurt systems available as a solution. It is an economical and efficient means of adding communication channels to existing wire lines.

Type 32E single sideband suppressed carrier terminals are equipped with either three or four channels in the 3-kc. to 35-kc. range, and can be applied over v-f circuits. With the use of repeaters, these channels can be used for high quality, medium- and long-haul circuits. System levels and frequencies coordinate with those used in Western Electric Type C carrier equipment.

The AE-Lenkurt team of engineers is equipped to handle as little or as much of the planning and installation as you wish. And AE will provide "follow-thru" service *for the life of the equipment.*

For full information on the Lenkurt Type 32E or companion equipment, call your Automatic Electric representative, or write the Director, Petroleum Sales, Automatic Electric Sales Corporation, Northlake, Illinois.

ALL YOUR COMMUNICATIONS NEEDS FROM ONE DEPENDABLE SOURCE

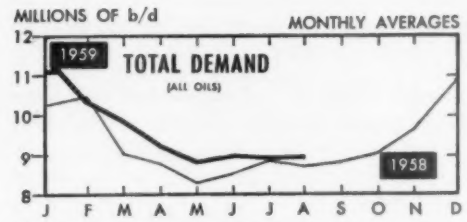
AUTOMATIC ELECTRIC GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

PETROLEUM WEEK'S

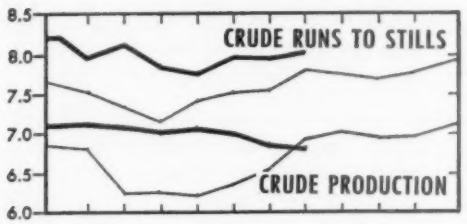
Fingertip Figures



Figures for period ended October 9, except as noted

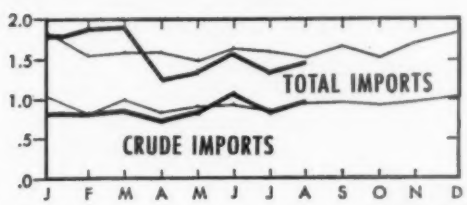
TOTAL DEMAND
Latest 4-week average *
Year ago 8.782

DISTILLATE DEMAND
Latest 4-week average *
Year ago 1.585



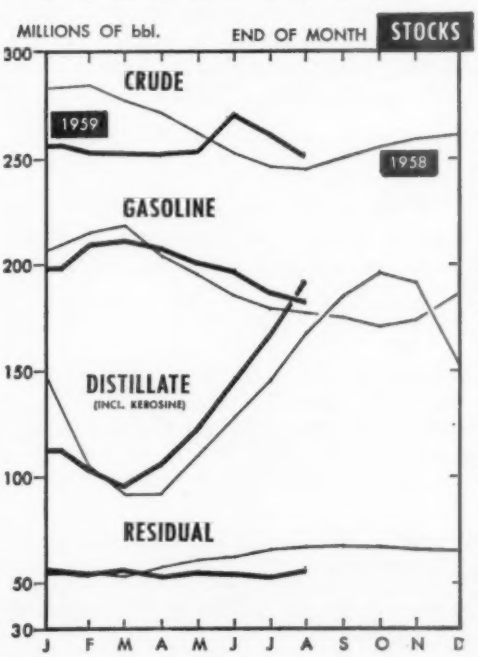
RUNS TO STILLS
Latest week *
Previous week 7.618
Year ago 7.723

CRUDE PRODUCTION
Latest week *
Previous week 6.825
Year ago 6.874



TOTAL IMPORTS
Latest week *
Previous week 1.961
Year ago 1.509

CRUDE IMPORTS
Latest week *
Previous week 1.404
Year ago .988



CRUDE STOCKS
Week-ended 10-3 251.2
Previous week 250.3
Year ago 250.3

GASOLINE
Latest week *
Previous week 175.9
Year ago 172.9

DISTILLATES
Latest week *
Previous week 206.4
Year ago 190.1

RESIDUAL
Latest week *
Previous week 59.5
Year ago 69.0

Regardless of the recent slight improvement in inventories, the immediate outlook for prices is dark.

Just a few examples are enough to set the tenor of the market:

- One of the largest suppliers of residual fuel on the East Coast late this week reduced delivered contract cargo prices for No. 6 by 10¢ a bbl. to $2 a bbl. in New York, retroactive to Oct. 1. Other sales have been made at 20¢ to 30¢ a bbl. discount off the recent New York delivered price of $2.10 a bbl.

Yet inventory-wise, residual fuel oil is in the strongest position of any product.

- As the winter season approaches, distillates are reported easier in Gulf Coast markets than in mid-September—despite many announced cutbacks in runs.
- Gasoline generally is moving at the "lows" in spot markets, but price wars have sprung up in several major retail areas.

While some observers say that domestic crude prices "probably will hold," discounts are the rule on imported crude.

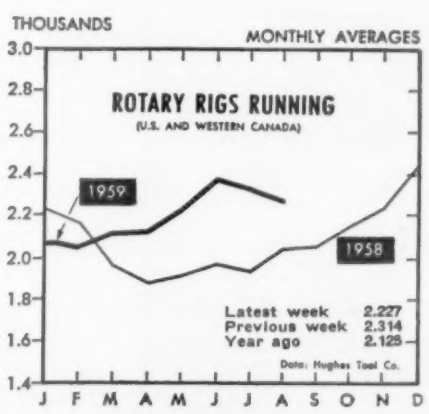
According to buyers, the general offerings of sellers this week are 70¢ discount off posting for most Venezuelan grades and 35¢ on Middle East oil.

Even larger discounts can be obtained on a spot basis, particularly for some Venezuelan crudes.

One middle-gravity Venezuelan crude reportedly can be delivered to U.S. coastal refineries for 99¢ a bbl. below the delivered price of domestic crude of similar quality.

* * *

* Due to the Columbus Day holiday, most figures for the week ended Oct. 9 were unavailable at press time.



The Market Trend

When Buffalo Bayou Meets Gowanus Canal

The battle is joined on light and heavy fuel oils. Will Gulf Coast refiners quote strong enough prices to force an upward move in the consuming areas in the East? Or will New York resellers be strong enough to keep a damper on spot cargo prices in the Southwest?

The issue was raised as all issues are—by a change—and this time it's a stronger turn in tanker freight rates. A Gulf-to-North of Hatteras clean voyage was closed at $2.42 a ton, mid-October loading. This price is stronger than other recent charters by 57¢ a ton. It works out to about 0.78¢ a gal. for Gulf-New York No. 2 fuel.

If this rate holds, New York resellers either have to knock down prices for No. 2 in the Gulf, or ask more for barges and truck lots at their receiving docks. Gulf Coast No. 2 prices start at 8.125¢. Tack on 0.78¢ for freight, and you can't meet the contract New York delivery cargo price of 8.5¢, less 1% for cash. You're in left center field at 8.9¢.

So, something has to give on No. 2 fuel. With Gulf Coast offerings fairly well contained, you'd assume that the East Coast will be getting a price advance soon. The catch is that New York barge prices are weak.

And something may have to give on No. 6 oil, too. The $2.00 posting on the Gulf Coast is firm to strong. On the other hand, the $2.10 delivered cargo price at New York is very slippery. There's very little residual free at the Gulf at $2.00—or any price. But just get a foreign oil import quota in hand, and you can probably slice 30¢ off the landed $2.10 price in New York. In other words, you're below the U.S. Gulf in Manhattan.

The No. 2 market is hard to figure because appearances at both ends of the line are deceptive. No. 2 fuel at the Gulf is not quite as firm as refiners there would have you believe. Nor is East Coast distillate as soft (without 50,000 b/d of imports this winter) as the inventory figures would portray.

The residual market is extremely deceptive because the East Coast companies who talk winter shortages are not buying at the Gulf. If nobody buys, and nobody maximizes residual yields at the Gulf, maybe—who knows?—the import restrictions will have to give.

Race for Quota Oil:

The 1960 race for crude oil quota buying already has started, and it bids fair to be as hotly contested as the 1959 contest. One company has offered 95¢ per b/d of "quota" crude. This year prices spiraled up to a top of about $1.15.

Events to Come:

Watch for two Gulf Coast independents to make a move in the New York market before long. Both the companies have lost some contract No. 2 account business. To regain their losses, they will try to get a direct foothold in the New York market.

Looking Ahead:

On the expansion train, an Eastern major has men out scouting for possible property acquisitions in Ohio and Missouri.

If these two states seem a long way apart, maybe it's not too bad a conclusion to say there's a long-range plan.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of October 12

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 98 oct prem 12.25-13
- Gasoline, 92 oct reg 11-11.5
- Kerosine 8.625-10.375
- Heating oil, No. 2 ..... 8.125-9.875
- Gas oil, 48-52 d.i. 8.375-10.125
- Fuel oil, bunker "C" $2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130 ..... 15.25
- Gasoline, 93 oct research prem 11.25
- Gasoline, 87 oct research reg 10.375
- Gasoline, 79 oct research 9.625
- Gasoline, 70-72 oct motor method 9.5
- Kerosine 8.625-8.875
- Heating oil, No. 2 ..... 8.125
- Gas oil, 48-52, d.i. 8.375
- Fuel oil, bunker "C" $2.00

New York Harbor, barges
- Kerosine 9.35-9.6
- Heating oil, No. 2 ..... 8.85-9.1
- Fuel oil, No. 6 ..... $2.37-2.47

Okla-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg 11-11.75
- Kerosine 9.5-9.75
- **Heating oil, No. 2 ..... 8.25↑-8.5**
- Fuel oil, No. 6 ..... $1.40-1.80

Chicago, bulk
- **Gasoline, 91 oct reg ..... 11.5↓-11.75↓**
- Heating oil, No. 2 ..... 9.125-10.85
- Fuel oil, No. 6 high sulfur 7.4-7.5

Los Angeles, rack
- **Gasoline, 88 oct reg ..... 12.15↑-12.65**
- Diesel fuel, PS 200 ..... 8.5-11.25
- Light fuel, PS 300 ..... $2.80
- Heavy fuel, PS 400 ..... $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3 ..... 4.5
- FOB Breckenridge, Tex. 4

LP-Gas
- Propane, Oklahoma (Group 3) 4.5-5
- Propane, Baton Rouge 5.125-5.875

Pennsylvania Lubes
- Bright stock, 25 p.t. 23
- 200 vis. neutral 25 p.t. 25

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. 24-25
- Neutral, solvent 200-210 vis. 20.5-21.5

Gulf Coast Lubes
- Bright stock, solvent 95 v.i. 24
- Neutral, solvent, 200 vis. 20.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130 ..... 16.5
- Gasoline, 79 oct research 10
- Kerosine 10.125
- Gas oil, 48 d.i. minimum 9.625

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 ..... $2.62-2.97
- North Dakota, 36.0-36.9 ..... 2.62-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.00
  - West Texas, N. M., inter., 36.0-36.9 ..... 2.93
  - West Texas, N. M., sour, 32.0-32.9 ..... 2.71
  - East Texas, flat 3.05-3.25
  - Mirando, 28.0-28.9 ..... 3.31
- Illinois Basin, flat 3.00
- Pennsylvania Grade, Bradford dist., flat 4.40
- California, Signal Hill, 21.0-21.9 ..... 2.22-2.32†
- North Louisiana-Arkansas, 36.0-36.9 ..... 2.77-3.02
- Wyoming, sweet, 36.0-36.9 ..... 2.85-2.90
- Wyoming, sour, 32.0-32.9 ..... 2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.) $2.38
- Leduc-Woodbend (Alta.) 2.53
- Redwater (Alta.) 2.42
- Steelman A (Sask.) 2.435
- Virden (Man.) 2.31

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido $3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.10
- Oficina, 35.0-35.9, Puerto la Cruz 2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay 2.30
- Bachaquero, flat, Las Piedras 1.73-1.88
- Tarra, 38.0-38.9, San Lorenzo 2.83
- Lagunillas Heavy, flat, Cardon 2.10

†*Differential per deg. of grav. varies.*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura $1.90
- Safaniya, 27.0-27.9, Ras Tanura 1.50
- Iran, 34.0-34.9, Bandar Mashur 1.86
- Iran, 34.0-34.9, Abadan 1.81
- Iraq, 35.0-35.9, Fao 1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.67
- Qatar, 41.0-41.9, Umm Said 2.05
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud 1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud 1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon $2.27
- Iraqi, 36.0-36.9, Tripoli, Banias 2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat $2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean .. (USMC—15%) $2.42↑
U.S. Gulf-New York, dirty ..... (USMC—32½%) $1.92
NWI-USNH, dirty ..... (USMC—50%) $1.38↑
NWI-UK/Cont., dirty ..... (Scale—30%) 22/9*
Persian Gulf-UK/Cont., dirty ..... (Scale—65%) 23/3*
Persian Gulf-USNH, dirty .. (USMC—75%) $3.26↓

**Sterling.*

COMPACT CARS RAISE...

Big Questions for Oil Marketers

Has the trend toward compact automobiles made superpremium gasoline unprofitable? That's one of the questions that marketers all over the country are pondering these days as they study Detroit's new car crop.

"I think the superpremium grade was a big mistake," says a vice-president of one of the nation's top ten oil companies. "The trend today is away from the higher-octane fuels. I certainly would consider it unwise to start marketing a higher-grade gasoline this year."

An account executive of a market research agency for one of the nation's top oil marketers told PETROLEUM WEEK that he is midway through a study of gasoline demand trends. But even at this point, he says, "We would not recommend that our client adopt a higher-grade gasoline."

At present, between 5% and 10% of the nation's automobiles require superpremium gasoline. This ratio is not expected to rise appreciably over the next year or two.

Throughout the oil industry, marketers are recognizing a decided trend in demand toward regular gasoline.

Whether the pressure toward regular be from the new compact cars, the foreign cars, the down-grading of normally high-compression autos, the trend in six-cylinder cars, or just a psychological preference for economy, the nation's marketers see an increasing proportion of gasoline sales going to regular. The proportion is about 57%, measured at service stations.

One company predicts that small cars (110-in. wheelbase or smaller) will account for between 6% and 7% of total car population by the end of 1960.

By 1965, the company predicts, as many as 20% of the nation's autos will be in the small-car class.

In terms of gasoline needs, the company anticipates that 72% of the nation's automobiles will carry a manufacturer's recommendation for regular gasoline by 1965.

Some marketers foresee a broadening of the octane spectrum, with superpremium inching upward in octane number, and regular holding firm around 92-octane or dropping slightly.

There is still a general belief among marketers that the octane ratings of the superpremium fuels will continue to climb, although not as rapidly as in the past. This belief is based on a forecast of higher compression ratios among the big cars—such as Cadillac and Lincoln—which, many believe, will not be affected by the trend toward economy.

However, one of the big pressures behind the octane race—competitive zeal for advertising prestige—will be missing, many marketers feel.

A minority of marketers expect a slight decrease in the octane level of regular gasoline. Their forecasts, which are based on the anticipated octane needs of the new small cars, are not supported by Detroit's octane forecasts, however.

Of the new compact cars, Chrysler's Valiant and Dart will apparently require an octane less than 92.

But as for GM's Corvair and Ford's Falcon, 70% will require between 92- and 94-octane, the rest somewhat higher. These estimates consider the higher octane needs acquired with the collection of carbon.

The forecast octane requirements of the Studebaker Lark and the Rambler are about 90 for automatic shift and 92 for standard shift for six-cylinder models. The Rambler American can generally be satisfied with 89- and 91-octane for automatic and standard shifts respectively.

Regular gasoline now averages 92.1 but is lower in several regions.

The reduced octane requirements of the middle-grade autos may put a floor under the octane level of regular gasoline.

One marketing research executive points out that, as medium-priced cars are downgraded in compression ratios (such as Oldsmobile's decrease from 9.75:1 to 8.75:1 in the Dynamic 88 model) they will be able to use the current regular-grade gasoline. But they will not be able to get along on less.

He also points out that many of the eight-cylinder models of Pontiac, Dodge, Edsel, and some of the heavier low-priced cars can now use regular, although their octane needs jump quickly when power accessories are added.

Other marketers feel that the average octane rating of regular will continue to inch upward, as refiners seek to pull more medium-priced cars into their stations with regular-grade fuel. These marketers say that this trend has begun in earnest on the West Coast, where the octane ratings of regular gasoline have jumped approximately two numbers since the beginning of the year.

Some marketing executives also believe that even though the small cars may be able to use low-octane gasoline this year, their requirements will rise as car makers begin adding more weight and power-hungry accessories.

All this may mean that premium gasoline will become less important in comparison with regular and superpremium.

As the automobile population begins to cluster around the two poles of the octane spectrum—with middle- and lower-priced cars moving toward regular, and higher-priced cars bunching around superpremium—the demand for premium gasoline could suffer, some marketers believe.

Look for greater attention to be given to multiple-blending.

More and more marketers are beginning to look upon Sun Oil Co. as having an enviable flexibility in its multiple-blending pump, which now dispenses as many as six grades of gasoline.

Because of the tendency of octane requirements to fan out, with as many as fifteen octane numbers separating the highest and lowest grades, many marketers doubt that two or even

Photographed in the Trianon Room, Sheraton East Hotel, New York, N. Y.

The oilman: big hit in this year's fashion show.

Your wife might be surprised to know just how important your industry is to American women. You and oil helped develop oil-based synthetic fabrics dainty as lace, tough as overalls. Oil-based synthetic dyes that challenge the rainbow. Oil-based treatments that put new life into natural fabrics. The next time you hear somebody start to talk against the oil industry, tell him you're an oilman—and proud of it. And tell him why.

SHELL OIL COMPANY SHELL

three pumps can satisfy the varied needs of tomorrow's automobiles. As a result, other majors may go to blending pumps.

Standard Oil Co. (Ind.), for one, is experimenting with multiple-grade pumps at a test location in the Midwest (PW—Oct.9'59,p15). And PETROLEUM WEEK learned last week that another large marketer, which at present sells two grades throughout the country, is carefully studying a shift to multiple grades.

A spokesman for Sun Oil Co. told PETROLEUM WEEK this week that competition from other multiple-blending marketers would probably enhance Sun's market position. "As the idea of custom blending catches on," he said, "motorists would be more inclined to try our gasoline than before." However, he added, "if everybody had a custom blending pump, it would naturally hurt us."

Amid all the speculation on the importance of the compact car trend, there is even some talk about a fourth-grade pump, dispensing a fuel lower in octane than the present regular grade.

There are at least three good reasons for doubting that this talk will materialize, however:

- A new pump installation is expensive. And when the product to be dispensed through it is a low-priced, low-margin fuel, the investment seems even less attractive.
- If a company does decide to install a new pump, it probably would look more favorably on a custom-blending pump, which offers greater flexibility.
- There is not sufficient evidence to show that the new small cars will be able to use a low-low-grade gasoline.

There is a possibility that at least one marketer will put a fourth pump in between regular and premium. The dealers of Standard Oil Co. of California are buzzing about an "economy Ethyl" to be used as Standard eases off on its super-premium.

How will the compact cars affect the prices of gasoline? Marketers feel that the effect of the small-car trend will be hidden by other downward pressures.

Because the industry is so overburdened with excess stocks, marketers hesitate to ascribe to the compact cars any particular credit for lowering prices. If prices do decline somewhat, it will be due to many factors, not just to small cars.

However, most marketers seem to feel that the small-car trend might cause the price differential between regular and premium gasoline to narrow somewhat.

As the proportion of cars using regular increases, the added demand for regular could cause the price to rise. Furthermore, some marketers feel, the improved quality of regular gasoline could be another factor in raising its price.

One marketer looks upon the economy trend as a factor favoring the private brand distributor. Since the private brander has become almost interchangeably associated with economy gasoline more motorists will tend to try private brands, he says, as they give greater importance to economy.

What's New / IN MARKETING

The oil industry's main defense against declining profits is the "reorientation of all segments" toward marketing, Dwight F. Benton, sales vice-president of Standard Oil Co. (Ind.), said last week.

Benton also called for marketing men of "increased stature" to employ new merchandising and managerial techniques in today's "unprecedented" marketing revolution.

•

Continental Oil Co. is offering its dealers a delivery plan that allows them to pay for gasoline after they sell it, instead of at delivery time, according to Conoco's regional office at Ft. Worth, Tex.

The company retains title to gasoline delivered to the station under this new arrangement. Once or twice weekly, company personnel take pump readings, then charge the dealer for gasoline sold.

This plan helps the dealer in two ways: (1) He doesn't have to pay for possible losses or shrinkage; and (2) he doesn't tie up capital, since he doesn't pay until he has sold the product.

Continental is trying the plan on an experimental basis at some of its transport delivery stations.

•

Premium gasoline in North Carolina must be no less than 96-octane. That's the decision of the North Carolina Oil Inspection Board, which wants to protect motorists.

Premium gasoline averaged 99.1-octane in Charlotte, N.C., last month, according to Ethyl Corp.'s monthly survey.

•

Engineering

An electronically controlled, push-button delivery system for service stations has been developed by Bowser, Inc.

The Modular Electronic Fueling System employs electronics where mechanical devices are now used.

According to Bowser, the new system makes possible the elimination of conventional pump islands, since the pump control unit, the computer indicator, and the pump hoses may be separately placed anywhere in the station layout.

Through circuitry, the system can perform the accounting, record-keeping, and invoicing functions at any point in the station—even at a remote central office, according to the company.

80%

Eighty percent of all mined underground storage for LPG has been constructed by Fenix & Scisson, Inc.

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DEPT/Service & Equipment Companies

WOODMAN PERINE is the new president of The Refinery Engineering Co., Tulsa, a division of Vitro Corp. of America, succeeding **Thomas M. Lumly**, who has resigned for reasons of health. Lumly will continue as a director of Vitro, and will serve as chief consultant to Treco. Perine, with the Vitro organization since 1948, continues as vice-president of the parent company.

W. Perine

W. T. Gettig

W. THOMAS GETTIG, assistant to the vice-president of Rockwell Mfg. Co.'s meter and valve division since 1957, has been appointed vice-president and general manager of LFM Mfg. Co., in Atchison, Kan. LFM is a Rockwell subsidiary that manufactures Rockwell-Nordstrom lubricated plug valves, steel castings and parts for Rockwell products, locomotive truck frames, and drilling mud pumps. Gettig, with the Rockwell organization since 1933, became general manager of its Barberton (Ohio) Valve plant in 1953.

PADGE MADDOX, J. C. JACKSON, and **AUSTIN JONES** have been named to new positions as assistants to the sales manager of BJ Service, Inc., subsidiary of Borg-Warner Corp., Long Beach, Calif. Maddox, formerly area sales manager in Ft. Worth, will be located in Houston. Jackson will move from Guyman, Okla., where he was district superintendent, to Tulsa. Jones, formerly district engineer in Hobbs, N. M., will be located at Ft. Worth.

W. M. (Bill) HIDDLESTON, formerly administrative assistant to the vice-president of sales for George E. Failing Co., Enid, Okla., has resigned to become sales manager for Logmaster Services, Inc., Enid. Export sales for Logmaster are handled by Failing.

J. E. NOLEN is the new special representative handling special sales projects for Tex-Tube, Inc., in Houston. He has recently retired from Texaco Inc., after 46 years of service. In his new position, he will report to Tex-Tube's manager of sales.

JOE McGRAW, JR., is the new division manager for the Rocky Mountain area of Security Engineering Division, one of the Dresser Industries, with offices in Denver. In his new position, he will be responsible for Security's distribution activities in Colorado, Wyoming, Utah, Montana, and North Dakota, and Farmington, N. M. McGraw was formerly regional sales representative for Security in Tulsa.

J. McGraw, Jr.

W. E. Ridgeway

W. E. RIDGEWAY has been appointed representative in the Middle East and northeast Africa for Hughes Tool Co., with offices in Beirut, Lebanon. Ridgeway was associated with the K. L. Bourdo Oil Field Supply organization, in Beirut, until August of this year. Since then, he has been operating as an independent manufacturers' representative and drilling engineer there. Ridgeway is the first representative that Hughes has had in this area.

GORDON LOCKETT has joined Yetco C. A. in Maracaibo, Venezuela, as area manager. He was formerly store manager for National Supply Co. at Las Morochas, Venezuela. Yetco is representative for American Iron & Machine Works Co., American Coldset Corp., Drilling Equipment Mfg. Co., Duro-Test Corp., Mattco, Inc., Oil Metering & Processing Corp., Web Wilson Oil Tools, Inc., and Lunkenheimer Valves.

JOHN W. BORROR is a new field sales engineer for Herb J. Hawthorne, Inc., Houston. He was formerly an engineer for Sohio Petroleum Co. and Gulf Oil Corp. Borror's appointment is part of the company's expanded field engineering service in short-hole, core-hole, and slim-hole drilling.

R. W. BORNEMAN becomes assistant manager of electronics planning for National Supply Co., Pittsburgh. Borneman joined National Supply in its general auditor's division in 1951, and moved to the staff of the manager of plant accounting in 1956. Later that year he became program project leader on the electronics planning staff, a position he has held up to the present time.

R. W. Borneman

L. B. Hume

LAURENCE B. HUME moves up to assistant manager of power engine sales for Cooper-Bessemer Corp., with offices at Mt. Vernon, Ohio. Hume, with C-B since 1940, has been located at the company's sales offices in Washington, D. C.

H. C. KING is the new regional salesman, production machinery at Pampa, Texas, for Jones & Laughlin Supply Division. He was formerly district sales manager for J&L at Regina, Sask. In his new assignment, he will report to **F. L. McFarland**, regional manager at Midland.

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Exclusive construction using Stryofoam® insulation assures less weight, more rigidness and greater comfort in any climate. Two men easily erect or take down in 15 minutes. Write for data on every housing need.

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8'x16' Model
$1595.00

Weight:
1100 lbs.

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DEPT/Personals

RAY H. HORTON, vice-president and a director of Humble Oil & Refining Co. (Tex.), has been named president of the Humble division of Humble Oil & Refining Co. (Del.), proposed domestic operating subsidiary of Standard Oil Co. (N. J.). He was also named to head the division's board of management. **Ralph J. Schilthuis,** vice-president of production for the present Humble company, has been named executive vice-president of the Humble division. Other officers named to the new division are: **Herman P. Pressler,** Texas Humble's director of crude oil marketing and transportation, vice-president; **Paul Millsapps,** assistant treasurer of the present Humble company, treasurer; and **Eugene E. Hunter,** now assistant controller, controller. **James H. Galloway, Ed. J. Hamner,** and **Russell H. Venn** will be members of the management board, and **Carl Illig** will be a member and general counsel. Officers and board members of the division will assume their new posts on Dec. 1, subject to the approval of the proposed merger of Humble and Jersey by shareholders of the two companies.

H. F. Defenbaugh R. H. Horton

HERBERT F. DEFENBAUGH has been elected vice-president for production of Sinclair Oil & Gas Co., in Tulsa, and **O. G. Simpson** succeeds him as division production superintendent, in Midland, Tex. Simpson was formerly executive assistant in the production department at Tulsa. Defenbaugh was assistant division production superintendent in Independence, Kan., Casper, Wyo., and Ft. Worth, before becoming division superintendent at Midland in 1956. **William J. Rogers** has been promoted to assistant chief petroleum engineer in the general office of the production department, in Tulsa. He succeeds **F. F. Wright,** who was recently named executive assistant in the exploration department. Rogers was formerly assistant division production superintendent at Ft. Worth.

SIX EXECUTIVES have been invited to join Humble Oil & Refining Co. (Del.), proposed domestic operating subsidiary of Standard Oil Co. (N. J.) Three from Humble Oil & Refining Co. (Tex.) are **Richard J. Gonzalez,** presently treasurer and a director, who will be coordinator of finance and economics for the new company; **Nelson Jones,** presently general counsel, who will be general counsel; and **Oral L. Luper,** controller, who will be controller of the new company. **G. B. Edwards,** now controller of Carter Oil Co., will head the new tax department, and **L. J. Weigle,** manager of Carter's southern division, will be secretary. **Lester R. Moore,** treasurer of Esso Standard Oil Co., will become treasurer of the new company. The appointments will be effective upon approval of the proposed Humble-Jersey merger at special stockholders' meetings later this year.

W. R. COOPER has been elected vice-president of Arabian American Oil Co., in Dhahran, Saudi Arabia, responsible for engineering and construction. He has been general manager for engineering and construction. **L. M. Snyder,** who has been vice-president in charge of engineering, construction, and local sales, becomes vice-president in charge of employee and public relations. He succeeds **R. A. Eeds,** who has resigned to become president of Esso Standard (Libya) Inc. Snyder, who will remain in Dhahran, also continues to be in charge of local sales.

W. R. Cooper R. M. Woolfolk, Jr.

ROBERT M. WOOLFOLK, JR., has been appointed manager of manufacturing for Texas Gas Corp., Houston. Woolfolk joined Texas Gas in 1957 as chief engineer, and became assistant manager of the manufacturing department in 1959.

J. D. DAVIS moves up to vice-president of United Gas Corp., Shreveport. He has been assistant to the president since 1957. In his new position, he will be responsible for the coordination of all activities of the Texas and Louisiana-Mississippi distribution divisions. **V. S. Brennan** has been promoted to director of sales and rates, and **W. D. Parkes** succeeds him as director of personnel. Parkes has been training supervisor in the personnel department since 1948.

BRUCE E. THAUBURN, formerly in the economics department of Arabian-American Oil Co., in New York, has become staff assistant to **Denver R. Williams,** manager of Ohio Oil Co.'s crude oil purchase and sales department. He will be located in Findlay, Ohio, where he will make

special studies of crude markets and movements for use in planning the handling and disposition of Ohio's domestic and foreign production.

S. A. Berthiaume H. O. Woodruff

S. A. BERTHIAUME is manager of the newly created exploration division in the domestic producing department of Texaco Inc., and **HOMER O. WOODRUFF** is the new assistant to the vice-president of that department. Berthiaume, who will be located in Houston, was most recently vice-president and general manager of Texaco Exploration Co., in Calgary. Before that, he was assistant to the vice-president in charge of domestic producing. Woodruff moves to New York from Tulsa, where he has been division manager for the past year.

WALTER LEVENTHAL has been named general manager of Food Fair Service Centers, Inc., newly formed retail gasoline division of Food Fair Stores, Inc. with offices in Philadelphia. Food Fair recently announced plans to install gas stations on its parking lots as an added service for its drive-in customers. Before joining Food Fair, Leventhal was engaged in the petroleum business in New York, New Jersey, Pennsylvania, Maryland, and Delaware.

JOHN W. RUSSELL moves up to assistant supervisor of the process engineering department at Ohio Oil Co.'s Robinson (Ill.) refinery. Russell, who joined Ohio Oil as a chemist at the Robinson refinery in 1941, was most recently an advanced process engineer there.

DR. JOSEPH L. GILLSON, chief geologist of E. I. du Pont de Nemours & Co., has been elected 1960 president of the American Institute of Mining, Metallurgical & Petroleum Engineers, succeeding **Howard C. Pyle,** president of Monterey Oil Co. Pyle will continue as president until Gillson takes office in February. **Basil B. Kantzer,** vice-president of Union Oil Co. of California, and **John P. Hammond,** assistant general superintendent of Amerada Petroleum Corp.'s production department, are two new AIME vice-presidents. Both men are former presidents of the Society of Petroleum Engineers of AIME.

EDSEL F. EIDSON has been named coordinator of sales training for DX Sunray Oil Co.'s marketing department, with offices in Tulsa. He will also serve as a staff member of the merchandising department at the general offices. Eidson served as assistant manager of training for Ethyl Corp., and as training representative for Shell Oil Co. and other organizations, before joining DX Sunray.

EDWIN P. DAVIS has joined McElroy Ranch Co. as manager of exploration, with headquarters in Ft. Worth. He was formerly land coordinator at British-American Oil Producing Co.'s Dallas office. In his new position he will supervise and coordinate the company's exploration departments in the Midland and Denver divisions.

DONALD A. MONRO, formerly director of purchases for Standard Oil Co. (Ind.), has been named administrator of Societe Civile Amoco, Indiana's foreign planning office, in Paris. He succeeds **Joseph K. Roberts,** who will remain as an advisor until he retires in 1960.

DAVID B. BARLOW has been appointed comptroller of California Chemical Co., San Francisco, subsidiary of Standard Oil Co. of California. Barlow was most recently secretary-treasurer of two other Standard subsidiaries, Salt Lake Pipe Line Co. and Salt Lake Refining Co., in Salt Lake City. In his new capacity, Barlow will have responsibility for the fiscal affairs of California Chemical, which is the parent of Standard's group of chemical subsidiaries, including Oronite Chemical Co. and California Spray-Chemical Corp.

W. W. CLAWSON becomes manager of exploration for Mobil Oil Co., domestic operating division of Socony Mobil Oil Co., with offices in New York. He was formerly senior vice-president and a director of Magnolia Petroleum Co., a Socony affiliate which has been absorbed into the domestic operating division. As a Magnolia officer, Clawson was in charge of exploration, producing, and research activities, with offices in Dallas. Before that, he was coordinator of domestic production for Socony, in New York.

W. W. Clawson J. B. Maebius

JED B. MAEBIUS is the new manager of the exploration department in Tidewater Oil Co.'s southern division, at Houston. He succeeds **T. G. Kelliher,** who was recently promoted to exploration manager for domestic operations, at the company's Los Angeles headquarters. Maebius, who joined Tidewater in 1957 as senior geologist for domestic operations, was exploration manager of the central division until it was combined with the southern division several months ago.

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Seaton Has the Right Idea

THE COAL INDUSTRY'S REPEATED ATTEMPTS to insure itself a healthy slice of the energy market by legislative fiat isn't going to get any support or encouragement from the Interior Dept.—which is as it should be.

Secretary Fred A. Seaton, in a recent address to the gas industry, made it plain that competition should determine the respective roles of oil, gas, and coal in the market places—not regulation and/or end-use controls.

Seaton agreed that the government has an obligation to provide the kind of a climate that would be best for all three fuels. But he felt equally strongly that the federal responsibility should have specific limitations—that it should not go so far as to carve out and freeze a portion of the total energy market for each.

PETROLEUM WEEK SUPPORTS and applauds that concept enthusiastically, and takes this occasion to commend the secretary. Seaton's views have not always pleased the oil industry. But this is one comment that should have universal approval in the petroleum industry.

What he should do now is to formalize the comment into a concrete policy for the department, and seek Cabinet endorsement as an Administration attitude.

Coal admittedly has its problems. Progress, competition, and consumer preference created them. Coal's attempts to cure itself with legislative medicine won't help at all. To the contrary, end-use controls would only spread the problems to healthy, growing industries, and would eventually sap the lifeblood of the competitive forces that are the sinews of our economy.

Fuel oil and natural gas are slugging it out now in the market places. It's a bitter fight, for gas is cutting as deeply into the fuel oil market as fuel oil did to coal some years back. They're using all sorts of promotional techniques, gimmicks, and salesmanship to induce consumers to use their product. One thing they're not doing is sitting on the Capitol steps pleading for the Great White Father to legislate them a share of the market.

PERHAPS THE COAL INDUSTRY COULD TAKE its cue from the fuel oil and gas men. Instead of spending money in Washington on lobbying programs, the coal industry should put it into research and promotional campaigns. Could be that the results would be better for all concerned.

NEW ENGINEERING DEVELOPMENT

Dowell Announces the "Acid Guide"

Now available to you—a new, greatly improved method for planning and predicting the results of oil well acidizing treatments. The "Acid Guide," developed and now in use by Dowell, offers you an engineering basis for answering these questions:

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3. **What results can I expect?**

Field results show an amazingly high degree of correlation with answers calculated from the "Acid Guide." You get this sort of information only from Dowell.

Today, when you ask your Dowell representative to **engineer** an acid treatment with the aid of the "Acid Guide," the chances are good that he will recommend an entirely different treatment than you expect. Acid volumes may be either smaller or larger. A different kind of acid may be recommended. Higher injection rates may be considered. As a matter of fact, the Dowell engineer may recommend fracturing or other treatments instead of acidizing.

In any case, field results indicate that you are likely to get more profit from your acidizing dollar.

Key to the "Acid Guide" is an "acid index number" which varies with the formation and the type of acid. Using this number as a basis, it is possible to select the most efficient treatment and to predict the probable results. The idea is to open up the largest possible drainage area at the lowest possible cost—by giving you the deepest possible penetration of the acid before it spends. This is achieved by balancing the amount and kind of acid and the injection rate against the solubility of the formation.

For example, Dowell engineered a treatment for a well completed in the Strawn Lime of Midland County, Texas. This formation is found at about 11,000 feet and is tight, dense, and almost completely soluble. The well did not produce at all after perforating. 360 gallons of BDA* (Breakdown Acid) was applied to clean the face of the pay, and production went to 27 bopd. The allowable is 180 bopd.

The "Acid Guide" showed that, under the existing well conditions, the optimum treatment was 12,000 gallons of Retarded Acid. It also showed that the maximum amount of regular acid that would be helpful was 2,000 gallons. The operator elected to treat the well with the 2,000 gallons of regular acid. Production rose to 53 bopd. Because of these results, the operator decided to try a 4,000-gallon regular acid treatment. However, as had been predicted with the "Acid Guide," there was no further increase in production.

Then the operator decided to follow the "Acid Guide." 12,000 gallons of Retarded Acid was injected at 5½ bbls. per minute. Production rose to 84 bopd. **The $3,500 cost was paid out in two months.**

That is just one example of the way the "Acid Guide" is increasing profits for operators. This engineered approach to acidizing is available **only** from Dowell, and is provided to you at no extra cost.

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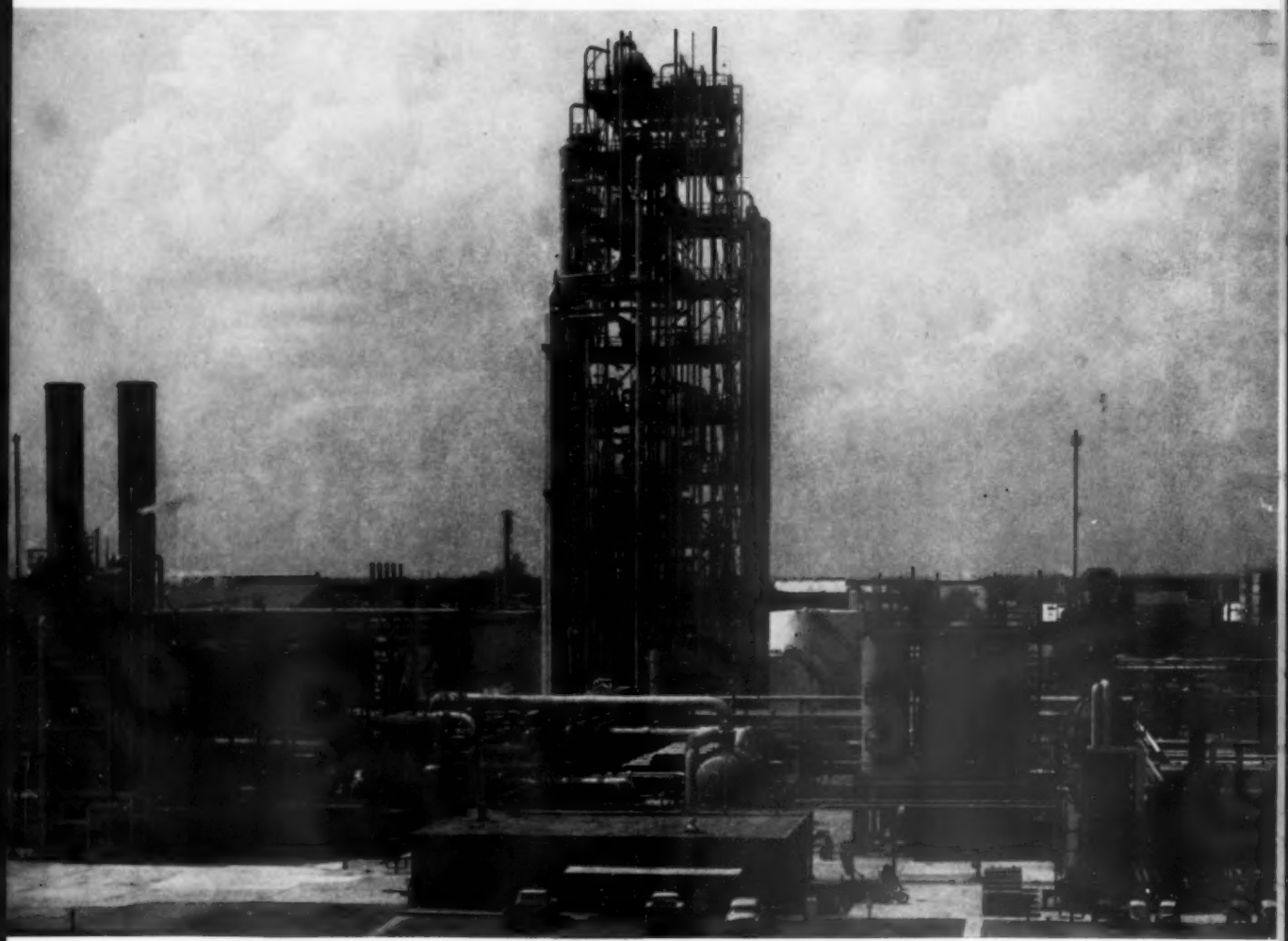

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